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THE INTERNAL CHRONOLOGY OF THE REIGN OF RĀJĀDHIRĀJA I.*

By

N VENKATARAMANAYYA, M.A. PH.D.

The sources of information for a study of the history of the reign of Rājādhirāja I are mostly epigraphic. All the known facts of his reign are gathered exclusively from his own inscriptions. They are, no doubt, supplemented to some extent by the contemporary Cālukyan records and the Ceylonese chronicle *Mahāvamsā*, but the information furnished by these external sources is, indeed, scanty, and does not materially increase our knowledge of the events of the reign. The inscriptions of Rājādhirāja I, like those of his predecessors and successors, embody *praśastis*, or as they are more frequently called 'historical introductions' which describe in set phrases the events of the reign. "These official 'historical introductions'," says Prof K. A. Nilakanta Sastri, "are, in fact, an important aid to the discovery of the particular king to whose reign any given record belongs"¹. Moreover, they grew in length from year to year with the advance of the reign having been subjected to frequent revision by the incorporation of new events as they occurred from time to time. This feature, though generally helpful in fixing the internal chronology of the reigns of the Cōla monarchs has lost much of its value with regard to the inscriptions of Rājādhirāja I, owing to certain peculiarities presented by his *praśastis*, and as a consequence considerable uncertainty prevails about the sequence of events that happened during the course of his reign. A careful and analytical study of his *praśastis* may be helpful in solving the difficulties, and fixing the chronology of the events of his reign in a satisfactory manner. No less than four types of *praśastis* are met with in Rājādhirāja's inscriptions. They are.—

*I offer my grateful thanks to Prof K. A. Nilakanta Sastri, M.A. and Rao Saheb S. Vayayapurī Pillai, B.A., B.L. from whom I received much valuable help in the preparation of this paper.

1. Colas I. P. 201.

- (i) *Tingalēr-pera-vaḷar*
- (ii) *Vīra Pāṇḍyana-talaṇṇum*
- (iii) *Tirukkoṇḍiyōḍu tyāgakkōḍi*, and
- (iv) *Tingalēr-taru*.

As the texts of all the inscriptions of the king have not yet been published, it is not possible to subject all the *praśastis* to a thorough and searching examination and formulate a definite scheme of internal chronology once for all. That, however, need not be considered a serious obstacle, for, the texts of the inscriptions that have been published so far are sufficiently representative and offer enough material for undertaking an investigation of the problem and arriving at results reasonably satisfactory.

(1) The *tingalēi-pera-vaḷar*, the first of these *praśastis* is brief, and it records, as stated by Prof. Nilakanta Sastri, "only the earlier achievements of the king, and seems to have been stereotyped about the twenty-sixth year of his rule, and repeated in that form in some of his later records"²

Probably it is the earliest of Rājādhirāja's *praśastis* and was obviously adopted by him during the life time of his father while he was still a junior partner in the government of the kingdom. The short introductory passage alluding briefly to Rājendra Cōla I's victories, coupled with the early regnal year twenty-six, which is actually the first year in which Rājādhirāja I assumed the supreme power over his ancestral kingdom, clearly indicates that the *praśasti* was first composed during the time of Rājendra Cōla I. The victories attributed to Rājādhirāja I in this *praśasti*, viz., the war with the Southern King Mānābaraṇan, the invasion of Vēṇaḍ and the consequent liberation of the ruler of Kūpaka as well as the destruction of ships at Kāndaḷūr-Śālai,³ must have actually taken place not during the reign of Rājādhirāja I himself, but earlier in the later years of the rule of his father when he was carrying on the administration of the kingdom as a junior monarch.

2 Colas I P 293

3 75 of 1893 (S I I v 633) Ec X Cb. 21, 492 of 1902 (S I. I. viii 82), E C IX NI. 25.

(ii) Next comes the second, the *Vīra Pāndyana-talāyūm*^{3a} Though this *praśasti*, like the *tingalēr-peṇā-valar* is short, and opens with a brief allusion to certain incidents that took place in the time of Rājādhīrāja's predecessor, Rājendra Cōla I, it shows a definite tendency to grow with the advance of his reign. It makes its appearance for the first time in the inscriptions of his twenty-sixth year (A D 1044)^{3b} and alludes to his victory over Vīra Pāndya and the destruction of ships at Kāṇḍalūr-Śālai. In the records of later years, the *praśasti* grows longer, and new achievements, not mentioned in the early version, are added on to it. The conquest of Lankā is referred to for the first time in a record of the 28th (A D 1046) year,⁴ and Śālai or Kāṇḍalūr-Śālai, where he destroyed ships, is explicitly stated, in another record of the 30th year, (A D 1048) to have been a possession of the Cēra,⁵ and in the later versions other achievements such as the subjugation of Rattapāḍi seven-and-half-lakh country (31st yr = A D 1049), and the sack of the city of Kalyāni (34th yr = A D 1052) are mentioned.⁶ The *praśasti* is thus seen to grow with the advance of Rājādhīrāja's reign, and with its help it is possible to frame tentatively a chronological sequence of the events mentioned therein.

- | | | |
|---|--|-----------------|
| 1 | Taking of the head of Vīra Pāndya and the destruction of ships at Kāṇḍalūr-Śālai belonging to the Cēralan | Before A D 1044 |
| 2 | The conquest of Lankā | „ A D 1046 |
| 3 | The conquest of Irattappāḍi seven-and-half-lakh country | „ A D 1049 |
| 4 | The sack of Kalyāni, the planting of the Pillar of Victory, the performance <i>Vīrābhīsēka</i> on the <i>Vīrasimhāsana</i> , and the assumption of the title Vijaya-rājendra | „ A.D 1052 |

3a 244 of 1929, 283 of 1904, 513 of 1912 (Colas I P 575), EC X Ct 30, 276 of 1902 (S I I VII 905), 239 of 1922, EC IV Gn 93, X Mb 106 (a), 245 of 1925 (Colas I P 582), EC X Kl 112 (b)

3b 244 of 1929

4 283 of 1904

5 EC X Ct 30

6 245 of 1925. EC X Kl 112 (b).

(iii) The *tirukkoḍiyodu tyāgakkōḍi*, the third on our list is the least known of Rājādhirāja's *praśastis*. It occurs, so far as known at present, in only one record of the thirty-sixth year (A D 1054);⁷ and it is not available for the purposes of study, as it still remains unpublished. The little that is known of it seems to indicate that this *praśasti* is not likely to be of much use in settling the chronology of the reign. According to Prof Nilakanta Sastri who has had an opportunity to examine it, it gives 'no new information but confirms only some details of the Cālukyan wars found in other records'⁸

(iv) The most important of Rājādhirāja's *praśastis* is, of course, the last which opens with the words *tingalêr-taru*. It is the longest and by far the most common of his *praśastis*, and it gives a full account of his achievements year by year. Though rich in historical material and valuable as a source of information, it does not easily lend itself to consistent chronological treatment, owing to inherent peculiarities in its composition. Apart from small variations due mainly to scribal attempts at concise statement for saving space, the text of the *praśasti* presents marked differences which do not easily fit into a consistent scheme of chronology. In its fully developed form, the *tingalêr-taru* has come down to us in two recensions one of which differs from the other in important particulars. Although both the recensions begin with a description of the events of the early years of the reign terminating with the destruction of ships at Kāṇḍalūr-Śālai, they soon diverge from the common course and follow new tracks which, notwithstanding their convergence at one point, viz, the Ceylonese war pursue independent paths, and reach destinations having no connection with each other. Of these recensions the more comprehensive which may for the sake of convenient reference be designated iv (a)⁹ describes, like the other Cōla *praśastis*, the events gradually year by year, and increases in length with the

7 244 of 1925

8 Colas I P 294

9 90 of 1892 (S I I iv 537), 54 of 1893 (S I I iv 867), 365 A of 1903 (S I I viii, 675), 49 of 1928, A R E 1928 Part II, 7 (Colas I P 574), 417 of 1902 (S I I viii 3), 215 of 1902 (S I I vii 842), E C IX Dv 75, 114 of 1896 (S I I v 978), 6 of 1892 (S I I iii, 28), 602 of 1902 (S I I viii, 199), 6 of 1890 (S I I iv 329), 107 of 1892 (S I I iv, 555), 81 of 1895 (S I I v, 641), 221 of 1894 (S I I v 520), 369 of 1903 (S I I viii 680)

advance of the reign. In certain places it seems to have become stereotyped in the 29th regnal year, and appears without any change in the records of later years. The tendency to develop does not, however, completely disappear, and it manifests itself in some of the 30th and 32nd year inscriptions which allude, for the first time, to certain incidents not mentioned elsewhere in the records of the reign. An analysis of the contents of the *praśasti*, as it is found in the inscriptions of the reign, is bound to be instructive, for, they present, the events as they occurred from time to time, in the order in which they were arranged by the contemporary *praśasti* writers.

An analysis reveals certain interesting features which have been generally left unnoticed. As regards the early years of the reign up to the 29th year, the *praśasti* opens with a description of the war with the three allied kings of the south. From the 29th year onwards the *praśasti* appears with a preamble detailing the gifts and titles which Rājādhirāja bestowed upon his relatives. Rājādhirāja must have distributed gifts and titles among his relatives and propitiated them immediately after his assumption of supreme sovereignty in his 26th year (A D 1044), on the death of his father Rājendra Cōla I. It is not possible to account for the omission of this topic in the earlier records in a satisfactory manner. The *praśasti* writers did not probably attach much importance to it at first, but later when, during the course of the first three years, the king became lavish, they considered it desirable to proclaim to the world the kindness and liberality of their royal master. Another matter that has to be noticed in this connection is Rājādhirāja's war with Lankā. It is mentioned for the first time in the inscriptions of the 28th year; in which it is stated that Rājādhirājā took the heads of the king of Lankā, most probably Vikramabāhu who is mentioned in this context in later inscriptions, and of Vikrama Pāndya who having lost his kingdom in South India sought asylum in Ceylon. The inscriptions dated in the 29th year (A D 1047) add the names of Vīra Śilāmēgan, the ruler of the people of Kannakucci, and Śrīvallaban Madanarājan of the lineage of Kannara to the list of princes slain by Rājādhirāja I in the island. The Ceylonese war obviously began in the 28th year or a little earlier and did not come to an end until the 29th year. The discrepancy in the accounts of the war apparent in the records of the 28th and 29th years must be attributed to the continuance of the war during the period. Again, the place of the *Aśvamēdha* sacrifice in the *praśasti* mentioned first in the

inscriptions of the 29th year (A D 1047) is continuously shifted. It is invariably relegated to the end of the *praśasti* without any regard for the events described therein. The reason for this disregard of chronology is not obvious. It was perhaps prompted by a desire to assign it to its proper place after the completion of the account of the *digvijayas* as enjoined by the *śāstras*. Lastly, certain inscriptions dated in the 30th (A D 1048), and 32nd (A D. 1050) years of the reign mention an incident not alluded to anywhere else in accounts of the earlier part of the reign. As the incident is described almost at the very beginning of the *praśasti*, it must have occurred early in the career of Rājādhirāja. It is stated that he defeated a certain chief called Vikramanāranan who opposed his father, and assumed, in commemoration of his victory, the title of Būpēndra Cōla. The reason for omitting this incident from the earlier inscriptions of the king is not quite apparent. Probably it was not deemed sufficiently important to deserve mention in the *praśasti*, but for the fact that Vikramanāranan who was at the head of the forces of Āhavamallan came once again into conflict with Rājādhirāja in the 30th year of his reign he would not perhaps have found a place in the *praśasti* at all. When the Cōla *praśasti* writers had to record Rājādhirāja's victory over the Cālukyan army under his command, they seem to have recollected his earlier history and incorporated it in the *praśasti* to enhance the glory of their sovereign.

The events of the reign described in this recension of *tingalērtaru* may now be arranged in the order in which they appear to have occurred.

27th year—A D 1045.

1 The conferment by Rājādhirāja of estates and titles on his relatives ¹⁰

2 Victory over Vikramanāranan and the assumption by Rājādhirāja of the title of Būpēndra Cōla.¹¹

3 War with the three allied kings of the south Mānābaranan, Virakēralan and Sundara Pāndyan

¹⁰ Mentioned for the first time only in the inscriptions of the 29th year

¹¹ Mentioned for the first time only in the inscriptions of the 30th year.

CHRONOLOGY OF THE REIGN OF RAJADHIRAJA I. 7

4. War with the ruler of Vēnād, the Three of Rāmakuda, and the Villavan; and the destruction of ships at Kāndaḷūr-Śālai

5. First war with Ahavamallan; death of the Cālukya commanders Gaṇḍappayyan and Gaṅgāḍaran, retreat of Vikki, Vijayādittan and Śāṅgamayyan, victory at Tannāda, and the burning of Kollippākkai.

28th year—A.D 1046

4 War with the rulers of Lankā, slaying of the king of Lankā, called Vakramabāhu,¹² Vikrama Pāndyan, Vira Śīlāmēgan of Kannakucci and Śrīvallaban Madanarājan of the lineage of Kannara¹³

29th year—A D 1047

5 Second war with Āhavamallan, defeat and flight of Gandara Dīnakaran, Nāranan, Ganapati, and Madusūḍanan, and the destruction of the palace of the Cālukyas at Kampi

6. Performance of the *Aśvamēdha* or the horse sacrifice.¹⁴

30th year—A D 1048.

7 Third war with Āhavamallan defeat of Cakravartī¹⁵ Vikramanāranān who headed a large army in the battle at Pūṇḍū-kataka-mānagara¹⁶ on the banks of the Pērār, capture of the two younger brothers of Neduvadi Telunga Viccaya, Śīlai Kaivuttarājan, Akkappayyan, Pīḍaikai Cōlan, (Kondaḷyarājan, Kunisilai-Muñjan, Daṇḍanāyakan Danañjayan . Vira Mānikkan)¹⁷ and Vākai Viccayan and his son and mother; the devasta-

12 Name mentioned from the 29th year onwards only

13 The last two princes are mentioned only from the 29th year onwards

14 Mentioned for the first time in the inscriptions of the 29th year

15 The title occurs only in the inscriptions of the 32nd year

16 'Mānagar' is added only in the inscriptions of 32nd year

17 Names enclosed in the brackets are found only in the records of the 32nd year.

tion of the Seven-and-half-lakh country,¹⁸ the sack of Pūṇḍūr; the demolition of the palace at Maṇṇantippai, and the planting of the pillar of victory¹⁹

The second recension of *Tiṅgalēr-taru*,²⁰ though it begins like the first with an account of the events of the early years of the reign up to the destruction of ships at Kāndaḷūr-Śālai, takes a different course and describes a set of events not mentioned in other records. The exact time at which this recension actually took shape it is not possible to determine. It occurs, no doubt, in an inscription alleged to be of the 26th year.²¹ The genuineness of this date is not, however, beyond question, for, in the first place, the first figure in the date is a tentative editorial restoration, and secondly, the internal evidence of the *praśasti* embodied in the record clearly suggests a much later date. The *praśasti*, as a matter of fact, takes up the account of an unfinished campaign against Āhavamalla mentioned in the inscriptions of the 33rd year and describes the later stages of the war up to the sack of Kalyāṇi. It is obvious that the record under consideration belongs to a period subsequent to the 33rd year, and it may be assigned to the 36th instead of the 26th year.

The contents of the *praśasti* may now be taken up for consideration.²² Although the events of the early years are narrated in this recension as in the previous recension, they differ from each other both in form and in content. The language of the present recension, notwithstanding the repetition of a few phrases of the other here and there, is totally different. The narrative is brief in the extreme. It barely touches certain facts and omits others altogether. The events described in the recension may be arranged in the following order

18 Referred to in the inscriptions of the 32nd year

19.

20 EC IX Dv 76, 413 of 1902 (S I I vii 1046), 415 of 1902 (S I I vii 1048), 41 of 1888 (S I I iv 139), 92 of 1892 (S I I iv 539), 172 of 1894 (S I I v. 465)

21 172 of 1894, (S I I v. 465)

22 EC IX Dv 76, 413 of 1902 (S I I vii 1046), 415 of 1902 (S I I vii 1048), 41 of 1888 (S I I iv 139), 92 of 1892 (S I I iv 539), 172 of 1894 (S. I. I. v. 465).

Before the 33rd year—A D 1051

1. Conferment of titles and estates on his relatives

2 War with the three allied kings of the south, the protectors of Kannī, two were despatched to heaven, and one was driven to the forests

3 War with the Cēralan, and the destruction of ships at Kāṇḍalūr-Śālai

4 War with the rulers of Lankā the king of the people of Lankā, Vallaban, and the ruler of the people of Kannakucci

5 War with the Karnātakas, acceptance of a *Parani* poem in Tamiḷ at Tannāda, victory over Niduvāl Viṇṇayan at Pūṇḍūr, and the capture of his father and mother, the arrival of Āhavamalla's spies, their capture and expulsion with inscribed tablets proclaiming Āhavamalla's fear fastened on to their chests, crossing of the three rivers Siru-tura, Perundura and Tayvi-Vimāraśi, planting of the pillar of victory at Ēttagiri, playing the *candu* with the kings who submitted, fight with Nulamban, Kāḷidāsan, Cāmundan, Kommaiyan, and Villavarasan, offer of protection to the descendants of the Gūrjara King, Uppala, slain (formerly) by Tailappan, and the restoration to them of the crown of the former siezed and attached by the latter to his war-drum, and the devastation of the Rattappāḍi seven-and-half-lakh country

Before the 36th year—A D 1054

Arrival of Āhavamalla's *perkadai* in the Cōla camp with a challenge for a fresh fight, episode of Āhavamallan and Āhavamalli, sack of Kalyānapuram, destruction of the royal palace in the city, assumption of the title, Vijayarājēndra, and the performance of the *Virābhūṣēkam*

A comparison of the contents of all the *prasāstis* of Rājādhirāja analysed above is bound to help us in finally fixing the internal chronology of his reign

No	Reg year	Christian year	I <i>Tingalér</i> <i>pera-valar</i>	II <i>Vīra Pāndyana-</i> <i>talarayum</i>	IV (a) <i>Tingalér-taru</i>	IV (b) <i>Tingalér-taru</i>
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1. 26th year A.D. 1044

- (1) War with the Southern (king) Mānābaranan
(2) War with the king of Vēnād, the liberation of the ruler of Kūpaka, and the destruction of ships at Kānda-hūr-Śālai
- (1) Taking of the head of Vīra-Pāndyan
(2) Destruction of ships at Kāndalūr-Śālai.

2 27th year. A.D. 1045.

- ..
- (1) Conferment of titles and estates
(2) Victory over Vikramanāranan, and the assumption of the title of Bupēndra Cōla
(3) War with the three allied kings of the south Mānābaranan, Vīra-kēralan and Sundara Pāndyan
(4) War with the ruler of Vēnād, the Three of Rāmakūda, and the Villavan and the destruc-

tion of ships at Kānda-
lūr-Śālai

(5) First war with Āhava-
mallan, death of the
Cālukya commanders,
Gandappayan and Gangā-
daran, retreat of Vikki,
Vjayādittan, and Śānga-
mayyan, victory at
Tannāda, and the burn-
ing of Kollippākkai

3 28th year A.D. 1046.

..

- (1) Taking of the
head of Vira-
Pāndyan.
- (2) The conquest of
the Cēra.
- (3) The conquest of
Lankā

War with the rulers of
Lankā taking of the
heads of (a) the king of
the people of Lankā, and
(b) Vikrama Pāndyan

4 29th year A.D. 1047.

..

- (1) War with the rulers of
Lankā the slaying of (a)
Vikramabāhu, the king
of the people of Lankā,
(b) Vikrama Pāndyan,
(c) Vīra Śilāmēgan, the
ruler of the people of
Kannakucci, and (d)

No Reg year	Christian year.	I. <i>Tingalér perā-vāḷar.</i>	II. <i>Vīra Pāṇḍyana-talaṇṇum</i>	IV (a) <i>Tingalér-taru</i>	IV (b) <i>Tingalér-taru</i>
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Śrīvallahban Madana-
rājan of the lineage of
Kannara

- (2) Second war with
Ahavamallan, defeat of
G a n d a r a Dinakaran,
Nāranan, Ganapati, and
Madusūdanan, and the
burning of the palace of
the Cālukyas at Kampūli
- (3) Performance of the
Aśvamēdha or the horse-
sacrifice

5. 30th year A D 1048

..

..

Third war with Ahava-
mallan defeat of Cakra-
vartī Vikramanāranan at
the battle of Pūṇḍūr-
kataka-mānagara on the
bank of the Perār,
the capture of the two
younger brothers of
Niduvadi Telunga
Viṇṇaya, Śilai Kaṇvuttia-
rājan, Akkappayyan,

Pidaikai Cōjan, Kon-
dayarājan, Kunisi
Muñjan, Dandanāyakan
Danañjayan, Vira Mānuk-
kan, Vāgai Viccayan, his
mother and son

The devastation of the
Seven-and-half lakhs
country, the sack of
Pūndūr, the destruction
of the palace at
Mannantippai, and the
setting up of a pillar of
victory

6. 31st year. A.D. 1049 .. The conquest of
Ira [ttapādi]

7. 33rd year A.D. 1051. ..

War with the Karmātakas
(The fourth war with
Āhavamallan) Accept-
ance of a *Param* poem in
Tamil at Tannāda, vic-
tory over Niduvāl
Viccayan at Pūndūr,
and the capture of his
father and mother, arri-
val of Āhavamalla's spies;
their capture and expul-

No. Reg. year.	Christian year.	I. <i>Tingalêr</i> <i>peṭa-valar.</i>	II <i>Vira Pāṇḍyana-</i> <i>talayum</i>	IV (a) <i>Tingalêr-taru.</i>	IV (b) <i>Tingalêr-taru</i>
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sion with inscribed tablets proclaiming the fear of Ahavamallan fastened on to their chests, crossing of the three rivers, Siru-tura, Perundura and Tayvi-vimāsi, planting of the pillar of victory at Ēttaguru, the playing of *candū* with kings who submitted, fight with Nulamban, Kāldāsan Cāmundan, Kommayyan, and Villavarājan, offer of protection to the descendants of the Gūrjara King Uppala, slain (formerly) by Talappan, and the restoration (to them) of the crown of the former seized and attached by the latter to his war-drum Subjugation of the Rattappādi seven-and-half-lakh country

8 34th year A.D. 1052.

..

Sack of Kalyāṁ, the
planting of a pillar
of victory, per-
formance of *Vīra-*
bhisēka seated on
Vīrasambhāsana, and
the assumption of
the title, *Vijaya-*
rājendra

9 (?) 36th year A.D. 1054.

..

Arrival of Āhavamalla's
perkadai in the Cōḷa
camp, episode of Āhava-
mallan and Āhavamalli;
sack of Kalyānapura;
destruction of the royal
palace, assumption of the
title *Vijayarājendra* and
the performance of the
Virābhāsēkam.

The contents of Rājādhirāja's *praśastis*, as shown in the foregoing schedule, give a clear indication as to the time when the events described in them took place. While attempting to arrange them in their proper chronological order, two important considerations must be borne in mind. In the first place, incidents mentioned in a record, dated with reference to any given regnal year, must be understood as having taken place either during that year itself or sometime earlier. Secondly, the order in which they are narrated in the *praśastis* must be regarded as chronological, unless there are strong grounds suggesting the contrary. The *Aśvamēdha* sacrifice, for instance, though placed invariably, as noticed already, at the end of the *praśasti* in all the inscriptions without regard to the chronology of the incidents detailed in them, is mentioned for the first time in the records of the 29th year. It would not be reasonable to shift the time of the performance of the sacrifice from year to year according to its changing position in the *praśastis* of later records. The sacrifice must have been performed either during the 29th year or a little earlier. Keeping these considerations in view, we may now proceed to arrange the events mentioned in the records of the reign of Rājādhirāja in their chronological order.

Some of the early victories referred to in Rājādhirāja's inscriptions must be assigned to the later years of the reign of his father, when he was participating in the governance of the empire as the junior monarch. The *ṭṅgalēr-peṛa-valar* and the *Vīra Pāndyana-talaiyum* appear to have had their origin while Rājēndra I was still on the throne. This is clearly seen from the preamble of the former which opens with a brief statement of Rājēndra's victories in the four cardinal points, moreover, the early date (26th year) of the records in which this as well as the other *praśasti*, *Vīra Pāndyana-talaiyum* are mentioned for the first time point in the same direction. As Rājēndra I died in the 26th year of Rājādhirāja I, the incidents narrated in the inscriptions of that year viz., the taking of the head of Vīra Pāndayan, the war with the Southern King, Mānābaranan, and the ruler of Vēnād, the liberation of the chief of Kūpaka and the destruction of ships at Kāndalūr-Śālai, must have certainly taken place during the concluding years of the former's reign. The *ṭṅgalēr-taru* gives more interesting information about these incidents, and adds much to our knowledge of the subject. It is stated that Rājādhirāja was engaged in a war with the three allied Kings of the South, Mānābaranan, Virakēralan, and Sundara Pāndyan who were the protectors of Kanni (i.e., the Pāndyas), and that he attacked the ruler of Vēnād and put him to flight; next, that he proceeded against the three

confederate chiefs of Rāmakuḍa and vanquished them, and that he completed his campaign by inflicting a crushing defeat on the Villavan or Cēraḷan, and destroying the ships which obviously belonged to him, at Kāndaḷūr-Śālai. Two other events mentioned in the later records of the reign must also be considered here, as they appear to have happened about this time. Inscriptions of the 30th year allude to a victory which Rājādhirāja won over a certain chief called Vikramanāraṇa. Since this victory, is placed as noticed already, at the very commencement of the *praśasti*, it is reasonable to suppose that Rājādhirāja came into conflict with Vikramanāraṇa even before he embarked on his war with the southern and the western kings. This is directly corroborated by the evidence of the *praśasti* in which it is explicitly stated that Vikramanāraṇa had opposed his (Rājādhirāja's) father.²³ The first campaign against Āhavamalla also probably took place either in the last year of Rājendra I or immediately after his death. No doubt, it is not referred to in the *tingalēr peṇa-valor*, and the *Vīra Pāṇḍyana-talayum* embodied in the inscriptions of the 26th year, but this need not be considered an objection. For, these *praśastis* are brief, and allude to few incidents. The former, which had become stereotyped even before Rājādhirāja assumed the supreme sovereignty does not mention the events of his reign, and the latter though progressive, does not notice anything which is not of outstanding importance. The *tingalēr-taru* of the 27th year, however, describes the campaign at some length, and as this is the first dated record in which this *praśasti* makes its appearance, it is not unlikely that the campaign was conducted immediately after the death of Rājendra I, if not actually during the last years of his life.

The next point of interest is the Ceylonese War. The chronology of this war is involved in some doubt. It is said that the events of this war narrated in the *praśastis* of Rājādhirāja were 'spread over several years and apparently connected with more than one campaign', and that they were 'grouped together' for the sake of convenience.²⁴ This statement is not quite in agreement with Cōla inscriptions, it needs a certain amount of modification. The Ceylonese War is referred to for the first time in the inscriptions of the 28th year. Both the *Vīra Pāṇḍyana-talayum* and the *tingalēr-taru* notice the war. The former roundly asserts that in

23. S. I. I v 520 u 15-16 'ūtai mun-vanda pōtalar Vikramanāraṇan'.

24. Colas I. P. 297.

addition to his victories over Vira Pāṇḍya and the Cēraja, Rājādhirāja also effected the conquest of Lankā.²⁵ The latter describes it in greater detail. Rājādhirāja is said to have killed a king of Lankā, and a certain Vikrama Pāṇḍya who took refuge in the island having lost his kingdom in South India.²⁶

The inscriptions of the next year add much new information. The king of Lankā slain by Rājādhirāja is here called Vikramabāhu, and besides Vikrama Pāṇḍya, two other chiefs, Vira Śilāmēgan, the ruler of the people Kannakucci, and Śrīvallaban Madanarājan of the lineage of Kannara are said to have suffered death at his hands in this war. In the light of the information furnished by these inscriptions, it is not unreasonable to conclude that Rājādhirāja was at war with the Ceylonese rulers during his 28th and 29th years.

Rājādhirāja's second and third wars with Āhavamalla do not offer any chronological difficulties. The former is noticed for the first time in the inscriptions of the 29th year, it appears to have been of short duration, and after his return to the capital Rājādhirāja seems to have celebrated the famous *Aśvamēdha* sacrifice, in order to proclaim his suzerainty over the whole of South India. The latter which is described in the records of the 30th year appears to have followed the former almost immediately, and as it is not alluded to in the records of the previous year, it should have taken place during the 30th year itself.

The date of Rājādhirāja's fourth war with the Cālukyas which ultimately terminated in the sack of Kalyāṇi cannot, however, be ascertained so easily. The second version of the *tingalēr-taru*, which appears for the first time in the inscriptions of the 33rd year, places it immediately after the war with Ceylon. As the events which, according to the other recension of the *praśasti*, happened subsequent to the Ceylonese War, are not noticed in this, it would appear as if this war had broken out immediately after the close of the war with Ceylon. Two other facts which also seem to suggest an early date for the Fourth Cālukya War must be taken into consideration in this connection. In the first place, it is

²⁵ Ibid P 575.

²⁶ 417 of 1902, S I I viii 3 "Ilanguyark-iravan alangal mudiyarindu mun-ṛanak-kuḍandu ten-ṛamūlmanḍalamuḷuvadam ilinda-v-ēlkatālam-mukku Ilanāḍēan-āḷuṇa Vikkīrama Pāṇḍyan varumani mudu tadindu."

described in a record said to be dated in the 26th year. Secondly, Rājādhirāja is said to have set out on the expedition from his camp at Tannāda, where he accepted a *Parani* in Tamīl. Now, a *Parani* is an eulogistic poem praising the military exploits of a hero in whose honour it is written, and as Rājādhirāja I is the hero of the *Parani* under consideration, it is possible to argue that the poem was devoted to a description of his victory over some enemy whom he vanquished very probably at Tannāda itself. It may be remembered in this connection that, according to the inscriptions of his 27th year, Rājādhirāja won a victory over the Cālukyas at Tannāda during the course of his Kollippākkai campaign. If it be assumed that Rājādhirāja's victory at Tannāda, and the acceptance of the *Parani* at that place occurred at the same time, then the war against Āhavamalla described in the second recension of *tingalēr-taru* must be assigned to a period anterior to the 26th year. Such an early date for the record, however, is highly improbable. The dubious character of the date of the record alleged to be of the 26th year has already been noted. Apart from the fact that its first figure is an editorial restoration, the internal evidence of the record distinctly indicates a much later date. The fact that Rājādhirāja accepted a *Parani* in his camp at Tannāda need not necessarily imply an early date for the war. Rājādhirāja, no doubt, won a victory over the Western Cālukya army at Tannāda while he was advancing upon Kollippākkai, but that could not have been the only occasion, when he visited the place Tannāda, i.e., the present Dhannāda in the Jammulamadugu taluk of the Cuddapah District, was situated on the direct route of the Cōla armies which were advancing against the Western Cālukya dominions, and it must have served as a convenient base for operations against Kollippākkai in the north-east as well as Pūndūr and Ēttagiri in the north-west. It is not, therefore, unlikely that Rājādhirāja had to encamp in the village on more than one occasion. As the present recension of the *praśasti* unlike the other refers only to the acceptance of the *Parani* and not actually to the victory which was the subject of its eulogy, it must have been composed on a later occasion and dedicated to the king appropriately enough at Tannāda, when he was camping in the place on a later occasion. Therefore, the campaign against Pūndūr, Ēttagiri and Kalyāni described in this recension of the *praśasti* cannot be assigned to a date earlier than the 33rd year of the reign.

The final phase of this war, though described in the dubiously dated record assigned above to the 36th year, appears to have

actually come to an end before 34th year; for the performance of the *Vīrabhisēka* or the anointment of the heroes which was the last act of the victorious campaign is mentioned in the *Vīra Pāndyana-talariyum* of that year. It may therefore be concluded that this war which commenced in the 33rd year came to an end in the next year

The contentious problems in the chronology of Rājādhirāja's reign being thus settled, the events narrated in his *praśastis* may now be arranged in their proper order

Before 26th year=A D 1044.

1. Victory over Vikramanāranan, and the assumption of the title Būpēndra Cōla

2 War with the three allied kings of the South, Mānābaranan, Vīrakēralan, and Sundara Pāndyan, who were the protectors of Kannī (Vīra Pāndya whose death is referred to in the *Vīra Pāndyana-talariyum* must have forfeited his head during this war).

3 War with the ruler of Vēnāḍ, the liberation the chief of Kūpaka, the campaign against the Three of Rāmakuda and the Villavan, and the destruction of the latter's fleet at Kāndalūr-Śālai

Between the 26th and the 27th years=(A D 1044-45)

4 First war with Āhavamallan, and the death of the Cālukyan commanders, Gandappayyan and Gangādarana, retreat of Vikki, Viṣayādittan, and Śāngamayyan, victory at Tannāda, and the burning of Kollippākkai

28th year=A D 1046

5a. War with the rulers of Lankā. the slaying of (a) the king of the people of Lankā (i.e., Vikramabāhu), and (b) Vikrama Pandya who having lost his kingdom in South India took refuge in the island

29th year=A.D 1047

5b War with Lankā continued the slaying of Vīra Śilāmēgan, the ruler of the people of Kannakucci and of Śrī-vallaban Madanarājan of the lineage of Kannāra.

6. Second war with Āhavamallan· defeat of Gandara Dina-karan, Nāranan, Ganapati, and Madusūdanan, and the burning of the palace of the Cālukyas at Kampili

7 Performance of the *Aśvamēdha* or the horse-sacrifice.

30th year=A D 1048

8 Third war with Āhavamallan the defeat of Cakravarti Vikramanāranan at the battle of Pūndūr-kataka-mānagara on the banks of the Pērār, the capture of the two younger brothers of Niduvadı (Niduvāl) Telunga Viccaya, Śilai Kaivuttarājan, Akkap-payyan, Pidaikkai Cōlan, Kondaiyarājan, Kuniśil Muñjan, Dandanāyakan Danañjayan, Vīra Mānikkan, Vāgai Viccayan and of his mother and his son

The devastation of the Seven-and-half-lakh country, the sack of Pūndūr; the destruction of the palace at Mannantippai, and the setting up of a pillar of victory

33rd year=A D 1051

9 War with the Karnātakas (Fourth war with Āhavamallan) —Acceptance of a *Parani* poem in Tamīl at Tannāda, victory over Niduvāl Viccayan at Pūndūr and the capture of his father and his mother, arrival of Āhavamalla's spies at Rājādhirāja's camp; their capture and expulsion with inscribed tablets proclaiming the fear of Āhavamallan fastened on to their chests, crossing of the three rivers, Sirutura, Perundura and Tayyivimarasi; planting of the pillar of victory at Ēttagirī, the playing of the game of *candu* with the kings that submitted, fight with Nulamban, Kālidāsan, Cāmundan, Kommayyan and Villavarājan, offer of protection to the descendants of the Gūrjara King Uppala, slain (formerly) by Tailappan and the restoration (to them) of the crown of the former, seized and attached by the latter to his war-drum, and the subjugation of the Rattappādi seven-and-half-lakh country

34th year=A D 1052

10 The arrival of Āhavamallan's *perkaḍai* to offer a challenge for a fresh battle, the episode of Āhavamallan and Āhavamalli, the sack of Kalyāni, the demolition of the royal palace in the city; the erection of a pillar of victory, the performance of the *Vīrābhīsēka* on the *Vīrasimhāsana*, and the assumption of the title of Vijayarājendra,

Another event of the reign of Rājādhirāja remains yet to be noticed. No account of his last war with Āhavamallan is given in the inscriptions of his reign, owing to his death at Koppam during its course while leading the forces against the enemy. As the incidents of this war are fully described in the records of his younger brother and successor, Rājendra II, who accompanied the army and assumed the command after the former fell in battle, the date of the campaign can be ascertained without difficulty. The earliest reference to this war is found in a record of Tirunāgēśvaram dated in the 2nd year (A D 1054) of Rājendra's reign.²⁷ The incidents are briefly narrated in the short *prasasti* beginning with *Irattappādi*. It does not mention Rājādhirāja, and attributes, curiously enough, all the victories to Rājendra himself, though he did not actively participate in the battle until the death of his brother.²⁸ According to this *prasasti* the events of the campaign which happened before the battle of Koppam are (1) the conquest of Rattappādi, and (2) the planting of the pillar of victory at Kollāpuram. As Rājādhirāja who was leading the van against the Cālukya forces at Koppam is definitely stated to have been mortally wounded and to have gone 'up into the sky and become a sojourner in the country of Indra, where he was welcomed by the women of the sky',²⁹ the conquest of Rattappādi and the erection at Kollāpura of a pillar of victory which happened before the battle must be attributed to him and not to Rājendra II whose only justification for taking credit for the achievements of his elder brother seems to have been the death of the latter and his own presence with the invading army. The events of the war and his death during the course of it may therefore be assigned to the 36th or the last year of his reign.

36th year = A D 1054

11 The fifth war with Āhavamallan the conquest of the Rattappādi seven-and-half-lakh country, the planting of a pillar victory at Kollāpuram, the battle of Koppam, and the death in the battle of Rājādhirāja I

²⁷ 214 of 1911

²⁸ (S I I iii 55) *Irattappādi ēlarai ilakkamum-kondu tann-ānaiṇl munn-ānai cella munnān tavirttuk-Kollāpurattu jayastambam nātti etr-amar perādu endicai nikaḷa paraiyadu karanga āṅgaḍu kēttu Pērāṅṅararuk = Koppattu vand-edir poruta Āhavamallanañji etc*

²⁹ 87 of 1895, 270 of 1915 Colas I P. 308.

ANTHROPO-GEOGRAPHY OF VEDIC INDIA*

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I. Territorial Divisions:

The earliest literature in which mention of the earth is made is the R̥g Veda Samhita. Reference is made in it to the earth (pṛthivī) as being very broad, though unfortunately its extent is not given.¹ It is significant that the Vedic hymns are completely silent on the route of the so-called Aryan invasion of India. It is also significant that the Vedic hymns contain no reference whatever to the nine-fold division of the earth later on adumbrated in the Purāṇas or the three-fold division of India, called then Bhāratavarsha. It is only in later Vedic literature that we meet with these three broad divisions—Brahmavarṇa or Aryavarta, Madhyadeśa and Dakṣiṇāpatha. But there is a very important expression in the R̥g Veda,² dakṣiṇāpada, evidently a reference to the Deccan and perhaps South India. It is said there that it was then a home for those banished from the land. This then gives an indication that the ancient Aryavarta stopped with the Vindhyas on the south. This political or geographical division continued till the time of the Kausītaki Upaniṣad³ and the Mānava Dharmaśāstra.⁴ In the last two books we have further references to the Madhyadeśa. But if we are to believe the Aitareya Brāhmaṇa,⁵ which refers to madhyamapratisthadiś, 'the country of the middle recently established,' then this geographical division of the Madhyadeśa should have been effected before the composition of the Aitareya Brāhmaṇa. This new kingdom was peopled by the Kurus, Pancalas, Vasas and Uśīnaras. As the authors of the

*Paper read at the Eleventh All India Oriental Conference, Hyderabad.

1 RV vii, 7. 2 5: 99. 3, etc.

2 X, 61. 8.

3 II 13

4 See Bau Dh Sūtra, I, 1. 2 13.

5. VIII, 14. 3.

Vedic Index observe, the Vasas and Uśīnaras slowly disappeared from the scene and the Madhyadeśa became practically the country of the Kuru-Pāncālas.⁶ The boundaries of this Madhyadeśa shifted from time to time. In the Jātakas we often meet with the term Majjhimadeśa where learning is said to have been in evidence and in which were the Videha country and the Arañjaragiri.⁷ According to the Divyāvadāna, Uśīragiri formed the northern boundary of this territorial division. Perhaps this is connected with Uśīnaras of the Aitareya Brāhmaṇa. The Buddhist texts give an indication that the Middle Country extended in the north upto the lower Himalayas, and in the south upto Avanti. Rhys Davids who has examined this question in extenso believes that by the Middle Country the Buddhists meant the whole of Aryan North India. This seems to me to be begging the question. For if the whole of North India is computed as the Middle Country, there must necessarily be some territory north of this middle country, recognised as being a part of the Indian continent. Therefore, it could not have been the whole of North India but definitely a portion of North India as also a portion of South India.⁸

Though Madhyadeśa formed a part of the Aryavarta, still there was the Aryavarta proper, which was the original home of the Aryans. I shall not discuss here the several unproved theories and hypotheses as to the first home of the Aryans. Suffice it to say that the internal evidence of the Ṛg Veda does not give any clue to an invasion of India by the Aryans. The whole difficulty is due to the acceptance of the fantastic theory of separate Aryan and Dravidian races, which is not historically a fact. According to the Mahābhāṣya of Patāñjali the western boundary of Aryavarta consisted of the Adarsa mountains.⁹ But it is rather difficult to locate the exact dividing lines between these ancient territorial divisions.

II. Rivers:

In the Vedic literature a number of rivers are mentioned. The Ṛg Veda has a Nadi-stuti or a sūkta in praise of rivers.¹⁰ Ārjikiya, Urñavati, Krumu (modern Kurum), Gomati

6. II, p. 126.

7. III, 115, 116 364. 463.

8. JRAS 1904, p. 91

9. Pāṇinī, 2 4. 10.

10. X. 75-6.

(identified with Gomāl), Trṣṭāmā (unidentified), Paruṣṇī (Ravi?) in connection with the battle of the Ten Kings, Marudvrdhā, Mehatnu, Yamunā (Jamna) on whose banks lived the Śālvas, Vitastā (the Hydaspes of Greeks and Bidaspes of Ptolemy), Śutudrī (Sutlej and Śatadru of the post-Vedic period), Śvetyā, Śilāmāvati, Suṣomā (modern Suwan?), Susartu, are among the rivers referred to in the above sūkta. The above streams must generally be treated as tributaries of the Indus, though it is difficult to identify many of them.

The other rivers which are mentioned but though not in the Nadi-stuti are also interesting to a student of Vedic geography. The following are not yet identified: Amitabhā,¹¹ Yavyāvati,¹² Vibāhī,¹³ Siphā,¹⁴ Sudāman.¹⁵

The river Rasā is believed to have been "originally the Araxes, or Jaxartes, because the Vendidad mentions the Ranhā, the Avestan form of Rasā."¹⁶ There is the stream Vipas¹⁷ which is certainly the modern Beas (the Bipasis of the Greeks). This is known as Vipāsā in later Indian literature. It is one of the several Indian rivers which have changed their original course to a considerable extent.¹⁸ Then we have rivers of much importance, the Sarayū, Sarasvatī and Sindhu.¹⁹ The Sarayū, the modern Sarju in Oudh played a glorious part in the days of Rāmāyana as the sacred stream of the Ikṣvākus. One is amazed at finding that these three sacred streams are not mentioned in the Nadi-stuti. Sarasvatī was a holy stream on whose banks several sacrifices were conducted.²⁰ One view is that with the Drsadvatī, this river formed the western boundary of the Brahmāvarta country.²¹ Its divinity is hymned in more than one place in the Vedic texts,²² and it is mentioned again as a river of the five tribes. For example, we call the

11. RV 5. 53. 9.

12. Ibid. VI. 27. 6.

13. RV. IV. 30. 12.

14. RV. I. 104. 3.

15. Pañca Br. XXII, 18. 1.

16. V.I. ii, p. 209.

17. RV. IV, 30. 11.

18. Imp. Gaz. of India, VII, 138.

19. RV. X, 64. 9.

20. Āśva. Śrauta Sūtra, XII, 6. 2. 3.

21. V.I. II, p. 435.

22. RV. II, 41. 16.

Kāverī as the river of the Cholas. There has been a considerable and vague discussion on the identification and location of this stream. No final decision seems to have been evolved. From the Oxus down to the modern Sarsutī, the stream has been traced, without caring for the tradition which alone seems to be correct. It was neither the Indus nor a mythical river. It was a real stream in the Vedic times and gradually it mingled with the Jumna as an under-current. This means that the stream has now changed its original course and that it had at a certain period merged itself with the Yamunā, by the side of which it must have been originally flowing. Equally important was the Sindhu or the Indus to the Vedic citizen.

Yet another river of the Rg Veda is Suvāstu,²³ corresponding to the Swat, which is a tributary of the Kabul river (known as Kubha). This was of course the Soastos of Arrian. I must now mention two rivers which are not mentioned in the Samhitas but which are referred to in the Śatapatha Brāhmaṇa. One is the Reva,²⁴ apparently the Narmadā. It is regarded in later literature as a stream of great importance. The other is Sadānīra.²⁵ The very expression implies that it was a perennial stream. Its geographical importance lay in the fact that it formed the boundary between the Kosala and the Videha countries. Its identification with the modern Gandakī may be accepted.

III. *Mountains:*

If we turn our attention to the mountain system as given in the Vedic texts, we are amazed to find that even important mountains like the Himalayas, Meru and Vindhya are not mentioned in the Rg Veda or early Vedic literature. In the Atharva Veda however Himavant is referred to in more than one place.²⁶ According to the Āitareya Brāhmaṇa the Uttara Kurus and Uttara Madras are said to have had their home beyond the mountain.²⁷ When we come to the Puranic cosmogony we find the Mahāmeru or Meru, generally regarded as a mythical mountain, forming the centre of the universe. The Taittirīya Āraṇyaka

23. VII. 19. 37.

24. XII. 8. 1. 17.

25. Ibid. 1. 4. 1. 14-15.

26. VI. 95. 3, etc.

27. VIII. 14. 3.

refers to it in one place²⁸ Though the term Parvata meaning a hill occurs in the Vedic literature, and though there is an unmistakable reference to the plants and products of the mountain including the minerals,²⁹ still the mountains are not named as such For example the Kausītaki Upanisad alludes to the mountains of the north and the south,³⁰ but one wonders whether it is a reference to the Himalayas and the Vindhya or to the mountain ranges in general

Other mountains which are mentioned in the later Vedic literature are the Krauñca³¹ which is associated in the Puranic literature with God Skanda, Trīkakud or the modern Trīkota in the Himalayas,³² Mūjavant or Munjavant of the Mahābhārata³³ a mountain of the Himalayan ranges, and Mainaka of the Himalayas³⁴ Again the Baudhāyana Dharma Sūtra puts the Pāriyātra (also Pāripatra) hills as the southern boundary of the Aryavarta³⁵ It appears the Pāriyātra hills form a part of the Vindhya ranges This only shows that even in the time of Āśvalāyana the author of Baudhāyana Dharma Sūtra who flourished about the 6th century B C the Deccan was still considered for geographical purposes different from Aryavarta or North India But it is really strange that the Vindhya are not at all mentioned in early Vedic literature This shows not that they did not exist then but that the penetration of Aryan culture into the Deccan and South India had not then become a *fait accompli*

IV Seasons

Seasons of course form a part of geography The Vedic Indian knew four seasons—summer (nāidāgha),³⁶ rainy season (prāvarṣa, also varṣa)³⁷ winter or cold weather (hima or hemanta)³⁸ and autumn (śārada)³⁹ He had a conception of the good and the

28 1 7 1 3

29 RV x 69 6, AV xix 44 6

30 II 13

31 Taitt Ar. 1 31 2

32 AV iv 9 8

33 Nirukta IX. 8.

34 Taitt Ar 1 31. 2.

35 I 2 9

36 AV ix 5 31

37 RV viii 103 3. 9

38 RV i 116 8, etc; AV xli. 1 11.

39. RV. vii. 101. 6,

bad seasons, the latter being designated pāpasama, and the former punyasama.⁴⁰

V. *Kingdoms and Tribes:*

The cardinal point about the Vedic countries and tribes hinges on an important text in the Śatapatha Brāhmaṇa⁴¹ from which European scholars read a legend of the Aryan migration towards the east of India⁴² On the assumption of this migration to the East, the thesis is propounded that originally the Kuru-Pāncāla country was the great centre of Brahmanical culture, and that this spread to the Kāśis, Kosalas and Videhas these being a corporate group, for social and political purposes⁴³ We are here interested in the geographical position of these countries No doubt if the sacred theory of culture flowing always from the West to the East, whether it be from one country to another, or from one part of the country to another, is correct the thesis is sound. The Kosalas and the Videhas are geographically and traditionally older than the Kurus, if not the Pāñcalas Tradition strongly supports the theory that the events of the Rāmāyana occurred centuries prior to those narrated in the other interesting epic Mahābhārata The Ikṣvaku line to which Rāma belonged had Ayodhyā as its capital, and this was the heart of the Kosala country At that time the Videhas were equally flourishing and therefore matrimonial alliances were often entered into between the Kosalas and Videhas Historically speaking, the Kurus and Pāñcalas became prominent at the time of the Mahābhārata War when the capital was shifted from Ayodhyā to Kuruksetra, near about modern Delhi Naturally the Kuru-Pāñcala kingdoms attained prominence in the Mahābhārata period From this it is to be inferred that the Brahmanical culture, to use the term of the orientalist, flowed from Kosala-Videha to Kuru-Pāñcāla But it would be more reasonable to take the view that in the Vedic period, the Vedic culture was flourishing both in the West and in the East of India The Punjab was probably the original home of this culture which first spread towards the East and later towards the South.

With this background let us turn to the peoples of Vedic India. Among the Rg Vedic peoples we find Ajas, Anus, Alinas.

40 Taitt S III 3. 8. 4

41 1 4 1. 10 ff

42 JRAS 1908, pp 831, 837, 1138, 1143.

43. V. I. 1. pp. 154-5.

Kikatas, Vaikarnas, Gandharis, Cedis, Turvasus, Yadus, Trshtus, Druhyus, Pakthas, Visānins, Vricivants, Vaikaranas, Śigrus, Śivas, Parśus, Prthus, Pārvatas, Pūrus, Bharatas, Bhalānas, Matsyas, Yaksus, and so on. It is rather difficult after this length of time to locate the geographical position occupied by these tribes but it is safe to say that these peoples belonged to North India. A study of these tribes in the Rg Veda Samhita shows that most of them united themselves in a confederation against an inimical confederacy. For example the Ajas, named perhaps after their totem sheep, are mentioned together with Yaksus and Śigrus⁴⁴. We hear of the Yaksus again in another place⁴⁵. Apart from the fact that they were not friendly to the Trshtus, we cannot postulate anything about these tribes. To venture a conjecture the Yaksus were perhaps the primitive Yaksa tribes so much heard of in the epic and Purana literature of the later days. Similarly we find a confederation of Anus, Yadus, Turvaśas, Druhyus and Pūrus⁴⁶. Luckily for us there is a clue to indicate that the Anus had their home on the banks of the river Parusnī⁴⁷. Of these the Yadus were the predecessors of the Yadu or Yadava tribe that played a glorious part in the days of Kṛṣṇa and the Pāṇḍavas, and had its capital at the modern Muttra. We are told that the Yadus sent an expedition across the Sarayu river⁴⁸. This means that they spread to different places in the country, and became a powerful ruling tribe in the epoch of the epic Mahābhārata. In one place, the Yadus figure with Turvaśas,⁴⁹ and these Turvaśas were noted for their horses. We have to infer that the Turvaśa kingdom was celebrated for its excellent breed of horses. We are on firmer ground about the Druhyas and the geographical position occupied by them. That they were one of the tribes on the North-western frontier and that they lived very near the Gandhara country are evident from some indications in the Samhita itself⁵⁰. And the Pūrus are mentioned as being resident on the banks of the Sarasvatī⁵¹. It is reasonable to equate these tribes with the later Paurvas who established a powerful and glorious dynasty.

44. RV vii, 18 19

45. VII, 8 6 19

46. RV I 108 8, VII 18 14, VII 10 5

47. VIII 74 15

48. RV I 174 9

49. RV VII 19 8

50. RV I 108 8

51. RV. VII. 96. 2.

Here one may recall the tradition embedded in the Purāṇas that an ancient king Yayāti had five sons, Yadu, Turvasu, Druhyu, Anu and Pūru⁵² Each of these princes founded independent kingdoms and their descendants were the Yadus, Turvasus, Druhyus, Anus and Pūrus. The Vedic reference to these tribes undoubtedly has reference to their Puranic tradition, for we have a significant statement in the Vāyu Purāṇa that the Purāṇa was much older than the Vedic literature. The conclusion is irresistible that Yayāti and Uśanas Śukra flourished long before the composition of the Rg Vedic saṃhita, thus pushing back the antiquity of Vedic India.

We have another group of tribes in Rg Veda—the Alinas Pakthas, Bhalānas, Śivas and Viśānins⁵³ Some of the old Indologists who tried to fix the probable geographical position occupied by some of the Vedic tribes, assigned the Alinas to the north-east of Kafirstan⁵⁴ The same authorities hold that the Pakthas had their home in the modern Pakhthura in East Afghanistan,⁵⁵ and that the Bhalānas were the peoples of the Bolan pass. This is conjectural. The Viśānins must be another tribe of the North-west frontier. The Śivas were probably the inhabitants of the Śivapura, mentioned by the grammarian Pāṇini⁵⁶ F. E. Pargiter identifies these Śivas with Śivis descended from Śivi Ausinara who was the son of Uśinara. Śiva Ausinara figures as one among the sixteen celebrated kings (soḍaśa-rājika) of old⁵⁷ He is said to have conquered the whole of the Punjab, then in possession of the Druhyus, with the aid of his four sons who in their turn became founders of four royal dynasties—Vrsadarbhas, Madras, Kekayas and Suviras⁵⁸ It is assumed that the Druhyu king defeated by Śivi, occupied the north-west corner which came to be known as Gandhara, after him⁵⁹ The Alinas were to venture a guess, the Alinas to which tribe the great Yayāti belonged. The Gandharis can be identified with the residents of the Gandhakar kingdom founded by the Druhyu

52 Vāyu Purāṇa, 93 15-17

53 RV VII, 18 7

54. Alt Leben 431

55 Ibid

56. IV 2 109

57 MHB VII 55, III, 197

58 An Ind Hist Tradition, p 264.

59 Ibid.

king According to Rg Veda Samhita this kingdom was noted for wool⁶⁰ and was on the southern bank of Kubha, the Kabul river.

Among other peoples the Cedis⁶¹ and the Matsyas⁶² may be now taken up for examination In the Mahābhārata both figure together and are treated as friendly neighbours The Matsyas were occupying at least in the epic times the modern states of Alwar, Jaipur and Bharatpur⁶³ Both the Cedis and the Matsyas traced their descent to their illustrious ancestor Vasu, perhaps a very ancient Vedic king and not exactly to Sudhanvan, son of Kuru found in the Puranas⁶⁴ We know how the fame of these dynasties was revived in the days of the Mahābhārata For, the Kurus and Pāñcālas come into prominence in the Brāhmaṇa literature, which is later than the Rg Veda Samhita in chronology⁶⁵ We are in the realm of speculation when we take the Vaikarnas⁶⁶ to have belonged to an original tribe from which the Kurus or Trstu Bharatas emerged It may be noted in passing that the Vaikarnas are to be located on the banks of the Sindhu (Indus) and Asiknī rivers According to one authority the Madhyadeśa was the home of the Trshtu Bharatas The exact location of the Bharatas is again difficult to ascertain though we see them lords of Kāsis and worshippers of Ganga and Yamuna in the Śatapatha Brāhmaṇa⁶⁷ The Rg Veda Samhita mentions the Trstus together with the Srñjayas, and as allies of Sudas in his war against the ten kings Their geographical position was contiguous to the Sarasvatī The Srñjayas who were occupying the North Pāñcāla kingdom, i e, the territory north of the Ganges, were an old Vedic people contemporaneous with Sudāsa

While this was the position with regard to the various tribes in the epoch of the Rg Veda, subsequently we hear of more tribes coming into prominence This was so in the time of the Atharva Veda and the Brāhmaṇa literature For example, mention is made

60 I 126 7

61. RV VIII 5 37 9

62 VII. 18 6.

63. V. A. Smith, ZDMG, 56, 675, *Dikshitar, Matsya Purana, A Study*, p. 20.

64 Va. 99 217-28.

65 Ait. Br VIII. 14.

66. RV VII. 18. 11.

67. 135. 4. 11-21.

of the Angas who are not referred to at all in the Ṛg Veda Samhita but occur in the Atharva Veda⁶⁸ The Angas were the people of the Angadeśa, which lay next to the Magadha, the modern Bihar. From the fact that they were a tribe belonging to East India and that they are not mentioned in the earlier Samhita literature, Pargiter comes to the conclusion that they must have been non-Aryan and must have crossed to India over the seas⁶⁹ This is again begging the question of the race theory and race conflicts. I think scholars of the present day would not attach much value to this theory There is nothing to indicate that they were alien to the Indian soil and that they came to India from over the seas But according to Indian tradition embedded in the Puranas, they were the people of Angadeśa founded by a son of Bali Further we have Anga Aurava, the celebrated author of Ṛg Veda X. 138. Pargiter is not inclined to connect this Anga either with the country of that name or with its people Still I feel this is an unmistakable reference to Aurava who hailed from Angadeśa If this interpretation be accepted—I do not see any reason why it should not be—then Anga at the time of the Ṛg Veda was a flourishing country full of reputed sages like Aurava. This would knock the bottom out of the theory of a non-Aryan tribe migrating from abroad to East India

In the Brāhmanas we hear of Udīcyas, literally people of the north⁷⁰ These are said to have been in close touch with the Kurupāñcālas who figure again prominently in the epoch of the Brāhmanas⁷¹ We are told that these Udīcyas who were generally treated as belonging to Gandhara and Kashmir spoke pure Samskrit language Already mention has been made of the Kurus and the Pancalas who were the people of the Madhyadeśa which can be inferred from contact with the Udīcyas mentioned with some prominence Apparently the Kurus and the Pāñcālas were friendly neighbours and formed a group of allies. Among the Kurus the Aitareya Brāhmana refers to a tribe of the Uttara Kurus⁷² It may be mentioned in passing that the reputed author of the Śilappadikāram refers to the constant delights of the Uttara Kuru country, in the opening canto. Whether it is a

68 V. 22. 14.

69. JRAS 1908, p 852

70 Sat Br XI, 4 1. 1.

71. Ib VI 2 3. 15.

72. VIII. 14 and 23.

reference to the happy vale of Kashmir or to a kingdom beyond the Himalayas we cannot say definitely on the strength of the available information. It was considered to be the home of the gods (devaksetra). In the same manner we have to treat the other tribe, the Uttara Madras occurring in the Aitareya Brāhmaṇa. Zimmer opines that they occupied a place not far from the country of the Kambhojas.⁷³ Another point to be noted in this connection is that the Kuru-Pāñcālas are mentioned together with the Vasas and Uśīnaras, and the three are all geographically grouped as peoples of the Madhyadeśa.⁷⁴ The Uśīnaras were a later branch of the Anava line. For the Puranas record a tradition that Uśīnara was a son of Mahāmanas who is considered by Pargiter among the successors of Anu,⁷⁵ as the seventh of that name. It is also said that Tīṭksu, brother of Uśīnara founded a kingdom in the Angadesa or east Bihar. Weber is of opinion that these Uśīnaras were the forefathers of the later Kāśīs and Videhas.⁷⁶ There is no clue whatsoever to identify the tribe Vasas. Reference has been made above to the Kambhojas who for the first time are mentioned in Yāskā's Nirukta.⁷⁷ They had not become prominent even in the age of the Brāhmanas.

Yet another tradition furnished by the Aitareya Brāhmaṇa is that Viśvāmītra the sage adopted Sunahśepa as his son to the chagrin of his natural sons. The fifty sons of the sage refused to recognise the adoption of Sunahśepa. On this the sage in wrath is said to have cursed his own sons to become outcastes. These sons left their home and made Dekhan their home, and were responsible for several groups of people who were deemed un-Aryan. There were the Andhras, Pundras, Sabaras, Pulindas, Mūtibas.⁷⁸ This shows that the degraded Brahmans and Ksatriyas probably settled in countries below the Vindhya and entered into matrimonial alliances with the women of the south. This is probably the origin of some of these tribes. Most of them like their compatriots, the Nisādhas who occur in Taittirīya Samhita,⁷⁹ and who are supposed to have sprung from the first king Pṛthu,

73 op cit , p 102

74 Ait Br VIII 14

75 Ind Hist Tradition, p 87

76 Baudh Śrauta Sūtra, 21 13—Ind Studien, I, pp 212-13

77 II 2

78 Ait Br, VII 18

79. IV. 5 4. 2, Ait. Br. VIII. 11.

were aboriginals with whom the civilised man came into contact and established marriage relationships. Thus arose a number of mixed castes to which the *Mānavadharmasāstra* devotes a special section (ch 10). Evidently these tribes were still in the lower stage of culture and attained a status in the Aryan fold only after contact with them extending over ages. The *Punḍras* however got their name from *Pundra*, one of the sons of *Bali*, and a brother of *Anga*. If this tradition is correct, the *Punḍra* kingdom should have been one of the eastern kingdoms rather than one of the southern. The *Aitareya Brāhmaṇa* mentions the *Prāciyas*, literally the people of the east, evidently a reference to the kingdoms corresponding to the modern Bengal and Bihar. The origin of *Vanga* (Bengal) is again to be traced to *Vanga*, son of *Bali*, as also of *Magadha* famous for its bards who were requisitioned by the kings of ancient India for singing their deeds of glory day after day. *Ambasthas*⁸⁰ and the *Kāraskaras*⁸¹ are other tribes, the former is mentioned in the *Brāhmaṇas* and the latter in the *Dharmasūtras* of *Āpastamba* and *Baudhāyana*. The *Ambasthas* were probably of the *Uśinara* line as is evident from the *Brahmānda*, *Vāyu* and other *Purāṇas*, and had their kingdom along the eastern boundary of the *Panjab*. About the *Kāraskaras* we have no other evidence as to their habitation.

The *Atharva Veda* refers to a number of new tribes like the *Bālīkas*, *Mūjavants*, *Mahāvarsas* or *Mahavrsas*, *Mucīpas*, *Mūtības*, *Muvīpas*, most of whom were perhaps peoples of Iran and barbarians in the eyes of the followers of the Aryan culture⁸². Added to this are the *Bahīkas* of the *Śatapatha Brāhmāṇa*⁸³ and the *Śābaras* of the *Aitareya Brāhmaṇa*⁸⁴. Some of these were mountain tribes and foresters. It is difficult to locate them with any certainty. I shall close this section with a passing reference to the term *Pañcajana* occurring in the Vedic literature.⁸⁵ These five peoples are generally taken to be *Anus*, *Druhyus*, *Turvasus*, *Yadus* and *Pūrus*, all located more or less near the river *Sarasvatī*. The interpretation offered by *Sāyana*, the celebrated commentator, is

80 *Āit. Br.* VIII, 21

81 *Ap. Dh.* sūtra, 22 6 8

82 *V.* 22 4 5 7 8. 9

83 *I.* 7 38

84 *VII.* 18. 2.

85. *Āit. Br.* III, 31, *R. V.* VIII. 9. 2, etc.

that they represented the four castes and the Nisādhas⁸⁶ This is not improbable because there were so many peoples in Vedic India and there is no point in picking out only these five tribes for mention Perhaps as I have said elsewhere these five, represented the peoples of those days grouped according to the geographical division of the land, and resembled the peoples of the Pālai, Mullai, Kurinji, Neydal and Marudam regions of the ancient Tamil land

VI *Some place names*

We have some interesting place names in the Vedic texts. The Pañcavamsa Brāhmaṇa mentions Plaksa Prāśravana as a place at a distance of 44 days' journey from the locality where the Sarasvatī disappears⁸⁷ The latter was known as Vinasāna, in the modern Patiala district The Taittirīya Brāhmaṇa mentions a certain Dayyāmpāti of Plaksa⁸⁸ Originally the locality must be Plaksa and later on Prāśravana was added We have a place Triplaksa where the Drsadvatī is said to have disappeared⁸⁹

A second place name is Masnāra where a Kuru king is said to have fought and won a victory⁹⁰ The Pañcavamsa Brāhmaṇa refers to a place Munimarana⁹¹ which was apparently the home of the Vaikhānasas, a group of ancient sages It is said that these were slain by one Rahasyu Devamālin

According to the Chandogya Upaniṣad there was a town Raikva-Parna in the kingdom of the Mahāvrsas⁹² And the term Raikva often occurs in that Upaniṣad as the name of a man of some note Apparently the locality was christened after him. Other place names occurring in the Aitareya Brāhmaṇa are Śāciguna and Sarva-caru⁹³ The former is to be located perhaps in the country of the Bharatas

We have similar place names whose identification defies even astute scholars. Urjāyanti is said to be a castle town, the capital

86 RV 1. 7 9

87 XXV 10 16 22

88 III 10 9 3 5

89 Pana Br XXV 13 47

90 VIII 23 3, Ait Br (cf Bha P V 13 26 ff).

91 XIV 4 7

92 IV 2 5

93. VIII 23. 4; VI 1. 1.

of Nārinaya Beyond this nothing is known about it ⁹⁴ The Yajur Veda Samhita mentions the city Kāmpīla⁹⁵ perhaps the later Kāmpīlya of the Pāñcāla country There is Kāra-pacava on the river Yamuna ⁹⁶ There is again Karoti where Tura Kāvaseya performed a sacrifice ⁹⁷ The Brāhmanas mention the celebrated Kuruksetra sacred on account of a number of streams and lakes From the boundaries mentioned in the Taittirīya Āranyaka, the authors of the *Vedic Index* are inclined to locate the Kuruksetra proper in the modern Sirhind ⁹⁸ The Āranyaka places Tūrghna to the north of Kuruksetra Kauśāmbī, another famous city, is mentioned in a reference to Kauśāmbeya in the Śatapatha Brāhmana⁹⁹ This work again mentions a certain Nādapit as the native place of Bharata ¹⁰⁰ From the paucity of names we have to judge that these were some of the prominent towns, capitals of some kingdoms, while the bulk of India was primarily a land of villages designated as grāma, a position true even at the present day.

VII. Occupations and Professions

We shall now pass on to examine the occupation of the people. India has been through the ages the land of occupational castes and groups Among the occupations we find smith (karmāra),¹⁰¹ ploughmen (krstī), potter (mrtpaca), herdsman (paśupa), carpenter (taksan), fisherman (puñjstha), barber (vaptr), boatman (nāvaja), jeweller (manikārs), basketmaker (bidālākara), washerman (malaga), dyer (rājayatri), ropemaker (rajjusarja) and weaver (vayitri) ¹⁰² The large variety and number of occupations show at once the advanced nature of the culture and civilisation of Vedic peoples It is wrong to call them peoples still in the stage of pastoral culture That they were agricultural (krstī), and used ploughshare (langala), sickle (dātra), threshing floor (khala), and measuring vessel (urdara), is evident from the numerous references in Vedic literature.

94. RV II 13 8

95. Taitt S VII 4 19 1

96. Panca Br XXV, 10 23

97. Śat Br IX 5 2 15

98. I p 170

99. XII 2 2 13

100. XIII 5 4 13

101. RV. X 72. 2.

102. Pan Br I 8 9 The term suggests these were largely women.

The grains cultivated included rice (vrihi), wheat (godhuma), barley (yava), and sesamum (tila).¹⁰³ In the matter of clothing they used embroidered (peśas), as well as plain garments (paridhāna, pandva)¹⁰⁴ Wool (avi),¹⁰⁵ silk¹⁰⁶ and skin (ajina)¹⁰⁷ were generally used as materials. In addition to these occupational groups, we meet with priests (rtviks), merchants (vaniks), and royal officials including soldiers. They had a sound knowledge of almost all metals, gold, silver (rajata), copper (loha), lead (sīsa), and iron (ayas) and the ornaments and implements mentioned show that there were experts who could work on these different metals. They knew shipbuilding (nau plava) among other industries and carried on trade both by land and by sea (samudra).

103. For details see V I, 1, pp 181-82

104. RV II 3. 6.

105. RV IX 109 16.

106. AV 18 4 31.

107. AV. V. 21. 7.

INDIA'S POSITION VIS-A-VIS INTERNATIONAL CURRENCY PLANS

By

C W. B ZACHARIAS

There is undoubtedly a large measure of similarity in the purposes and objectives of the British and American currency plans. Both are designed to expand foreign trade, to maintain stable rates of exchange and to provide adequate quantities of media of payment. Both contemplate the restoration of the gold standard in member states immediately the war is over. But behind these similarities exist fundamental differences in technique and the mode of approach.

The British approach is characteristically that of a debtor country which in the post-war period will have to import large quantities of goods for which it cannot pay with exports or with gold, and which for its existence and continued prosperity will require a growing volume of foreign trade. The American approach, on the other hand, is that of a large creditor country self-sufficient for the most part, to which foreign trade is a luxury, yet none the less desired as an outlet for its surplus goods and as an instrument of power to do good or evil to the rest of the world. This difference in approach is unmistakably evident in the provisions of the plans. The American plan gives international applicability to a known and mastered technique under which the creditor country will immediately get paid for all its exports in its own currency. There is no need therefore for the creditor to wait for payment or to import unwanted goods, to lower its tariff or to lend abroad. The onus of adjustment is thrown almost entirely on the debtors. No doubt provisions exist calling upon creditors to adopt corrective measures if the Fund's holdings of their currencies should go below 20% of their quotas (according to the revised version of the plan), but the decision in the matter would appear to rest entirely with the creditors themselves. Scarce currencies will be rationed, and in order that the export trade of those countries may not suffer, special measures will be taken by the Fund to increase its holdings of such currencies.

Under the British plan, however, what the creditor country receives for its export surplus is a bancor credit balance with the Union, convertible neither into gold nor into local currency and useful only for effecting international payments. Self-interest and the necessity to avoid the penalties under the plan will compel the creditor country to liquidate the balance as quickly as possible either by importing goods or by lending abroad. The British plan is obviously based on the principle that international equilibrium can be attained only by throwing the responsibility of adjustment equally on debtor and creditor. Both debtors and creditors are subject to penalties and may be called upon to adopt specified corrective measures.

The Bancor of the British plan is an international currency designed to take its place alongside of gold as an alternative means of payment. There is little in common between it and the Unitas. The latter is merely a unit of account for the purpose of keeping the accounts of the Fund. It does not supplant or supplement existing means of payment and is wholly unnecessary for the working of the plan. It was invented, perhaps, to evade the problem of choosing between the dollar and the pound and possibly to dispel the suspicion that any one country had a predominant voice in the management of the Fund. The Bancor is truly bank money, created by the Union to facilitate international payment. It has a gold value given to it, a concession to monetary orthodoxy and perhaps to the gold interest, but has no gold backing to fix and sustain that value. The British plan is a novel experiment, an attempt indeed to effect a compromise in the international field between the principles of the gold standard and the principles of managed currency.

The British scheme is manifestly expansionist. The bancor creations of the Clearing Union estimated at £9000 million if all countries participate in it or £6000 million if only the United and Allied nations join it,¹ will be a clear addition to world purchasing power. The whole of this money will not however be available. All members cannot be debtors at the same time, and the plan does not contemplate the attainment of the full quota by any debtor. On the supposition that debtors are in debt only

1. Essentials in Post-War Currency Schemes, J. P. Edwards, *The Bankers' Magazine*, December 1943.

to a quarter of the quota and further that only some countries are in debt, the additional purchasing power will not probably exceed £750 million or roughly \$3000 million. On the face of it this would indicate a 21% increase in the total value of the import trade of the world which was in 1938 \$14232 million.² The increase will be 42% if half the quota is reached and 63% if three-quarters is reached. These figures are however misleading, for allowance has to be made for the higher prices prevailing everywhere. The expansion will then be found to be of lower percentage. Nevertheless these figures are useful in making a comparison with the American plan.

On the assumption that the countries of the world do not change their monetary policies, the American plan would be less expansionist for the reason that the total of quotas is much less and further that it requires an initial contribution in gold and a percentage surrender of gold or foreign exchanges for overdraft. Under the permissible quotas of the revised plan, countries with large gold and foreign exchange holdings can expand their trade in the first year of operation by only 25% of their quota and thereafter by 50%. Poorer countries with less gold and foreign exchange may expand in the first year by 50% and thereafter by 100%.³ 100% is the maximum possible for any country without the special approval of the Board. And since this privilege will be enjoyed only by a few countries the expansion will be much less for the world as a whole.

Contrary to its claims, the British plan would seem to require some degree of outside management for its successful working. The *bancor* is available only for transfer from one account to another, and since it is not convertible into gold or local currency, the Central Banks of the member states will have the responsibility of creating or withdrawing local money according as the country in question is running up a credit or debit *bancor* balance. There is the need for importers paying and exporters receiving payment. This can be ensured only in the following manner. The Central Bank of the debtor country on receiving money from the importers

2. Statistical Year-Book of the League of Nations.

3. This calculation was made by deducting the gold and foreign exchange a member is required to surrender from the permissible quotas. The possible increase in importation is really measured by the difference.

should impound the money, and conversely the Central Bank of the creditor country on being advised of the credit bancor balance should create new money with bancor as backing to effect payment to the exporters. It does not seem as though this necessity can be avoided, and it is relevant to ask whether the new arrangement is an improvement at all on the old gold standard. The contraction of currency in a debtor country and the expansion of currency in a creditor country would have deflationary and inflationary effects respectively, just as under an outflow or inflow of gold, to avoid which the Central Banks should indulge in open market operations. The deflation or inflation, if it is of moderate dimensions, can certainly be neglected and should be allowed to function as a necessary corrective. The permissible fluctuations in the rate of exchange can be engineered only just that way. This is perhaps what will happen under the American plan which is less expansionist. If however deflation or inflation of a high degree results under either plan from the passive attitude of the Central Bank, its interference in the open market would become imperative to safeguard the internal situation and to maintain the stability of the rate of exchange. Member states are required under the plan to ensure the stability of the rates agreed upon and at least in fulfilment of this undertaking Central Banks will have to practise a little management. Open market technique is now a well-known technique, practised even by the newly established Central Banks, and few Central Banks will find it difficult to implement it in the daily management of trade balances. Still the necessity for outside management detracts from the 'internal stabilizing' character of the plan.

Both plans place a great deal of emphasis on the stability of exchange rates and under both schemes the new international organ secures a large degree of control over them. But there is greater flexibility in the British plan. In the first place, the bancor is not unalterably linked to gold, secondly, every member state has the right to alter the rate of exchange once by 5% in certain circumstances, thirdly, a repetition of this is allowed with the approval of the Governing Board, fourthly, the Governing Board is required to give special consideration to appeals for an adjustment of the rate during the first five years, and lastly the decisions of the Board require only a simple majority. The rigidity of the American plan in its original draft has been considerably modified in the process of revision. The gold value of the Unitas can now be changed by an 85% vote. The four-fifths majority

originally required for a change in the rate has been reduced to three-fourths. A new provision to the effect that in the first three years the rate may be changed by not more than 10% by a simple majority vote has been included. Still a member state will find it difficult enough to secure the approval of the Board for a change.

The gulf between the two plans is perhaps not unbridgeable, and the talks now going on between the experts of the two countries may conceivably result in an agreed formula. But any compromise effected should retain the characteristic features of both plans and should also register the greatest improvement on the international gold standard. This would be more easily attained by adopting the British plan as the basis and supplementing it by the good features of the American plan. It is easier to graft some of the provisions of the American scheme on to the British plan than vice versa without sacrificing the signal contribution of the British experts to the solution of the problem. In spite of our greatly enlarged gold holding to-day and the increased activity of the gold producing countries, the potential danger in the post-war period is a repetition of the experience of the inter-war period. The proposed international organization should make that impossible. The *bancor* of the British plan, capable of expansion and contraction with the changing 'needs of trade' is just the alternative to gold the world so urgently needs, and since it is of no use in domestic transactions, compulsion will be exerted on both creditor and debtor to make them resort to those very correctives which the situation would demand. Furthermore, accession to the British scheme is easier, for it involves no initial contribution in gold or foreign exchange, but only a readiness to receive payment for a country's export surplus in *bancor* and an undertaking to maintain stable exchanges. For a creditor country this means only the denial of the privilege of importing gold. Importation of goods from anywhere, foreign investments in any country, short-term lending or holding of idle balances are all possible under the scheme. The denial of the privilege of importing gold can hardly be accounted a real loss, as there is not much of a difference between holding idle gold and holding an idle *bancor* balance. To the debtor country it gives the greatly needed breathing space within which to correct the maladjustment and set its house in order. The situation that will develop in a creditor country will be identical with the effects of a gold sterilization policy without the corresponding deflationary pressure in the debtor country.

Once the scheme is set going its liquidity is assured by the necessary equality of credits and debits and by the impossibility of withdrawals of bancor. Creditors will have no inducement to contract out, for such procedure does not give them opportunities of using their bancor balance in ways which are not permitted to members. Debtors do not get rid of their obligations by resignation. Default by debtors has to be guarded against, and if suitable modifications are introduced in the provisions, it will not be difficult to vouchsafe the sustained allegiance of all members. Some sacrifice of the autonomy of a state is imposed, and a member lays itself open to interference in its internal economy, but the degree of interference is not greater than in the American plan and will arise only in the event of a debtor or creditor failing to act in a manner consistent with its position. The lack of assets in the Clearing Union to serve as backing to the bancor has been adversely commented upon⁴. This lack is the most characteristic feature of the British plan. Currency theory is to-day sufficiently advanced to recognize that the value of a currency depends not on the specific backing it has in gold or other assets, but upon its general acceptability. To implement this truth in an international currency plan is not a defect, but a merit and should receive recognition as such. If however anything is needed to sustain the value of bancor the member states may be required to give a collective guarantee. There is of course the necessity to safeguard the creditors against default by debtors. Existing provisions do not seem to be adequate for the purpose, for a debtor is required to submit acceptable collateral only when the debt exceeds $\frac{1}{4}$ of the quota. A quarter of the quota may in some cases be as high as 750 million dollars (Britain for instance), and a default of this magnitude may, to say the least of it, be irksome to the Union. This defect may be corrected by a slight modification insisting on the submission of the country's own obligations for an overdraft upto $\frac{1}{4}$ of the quota. This provision along with the already existing one that all countries should agree to pay into the Union any amounts due to a country in default will sufficiently safeguard the creditors. All things considered the British plan is better material with which to work.

So in the rest of this paper that plan will be made the basis of study with incidental references to the American and Canadian

4. V. K. R. V. Rao: *India and International Currency Plans*, pp. 12 and 20.

plans, and the main question under examination will be the manner in which the Indian economy will benefit from and be affected by joining the scheme.

II

To define India's proper attitude to the currency plans is a difficult task, for none of the plans has assumed its final form and no one can be certain yet of the shape of things to come. That she in her own interests should join any international scheme when one is set up, admits of no doubt. Foreign trade has been of increasing importance to her in the past and will continue to be important in the post-war period. Whatever be the pace of industrialization, self-sufficiency is not immediately practicable, and as a long range policy its desirability is open to question. Nor can India hope to place the same reliance as of old on the automatic working of the gold standard. In the past, under adverse trade conditions she was able to pull through because of a certain degree of resilience she had, through the capacity of her nationals to lower their standard of living, a doubtful virtue, no doubt, and through the possession of a large stock of non-monetary gold. The loss of over Rs 350 crores of gold during the depression period has not been made good subsequently, and the higher standard of life resulting from income inflation in the war period will make adjustment to a lower standard more difficult in the future.

To sustain the existing standard of life, foreign markets are needed for our exportable surplus. There will undoubtedly be a large demand for India's products for relief and rehabilitation in the war damaged countries, and from other countries too to make up for lost sources of supply. But it is futile to expect that an export surplus will be automatically forthcoming. Many countries in the post-war period will exhibit an inability to pay for the goods they urgently need either in goods or in gold, and unless there is some mechanism which enables them to postpone payment, the sellers will find it as difficult to sell as the buyers to buy. The world is only too familiar with this circumstance in trade depressions to question its truth. The fact that she will not immediately get payment for her exports is not a valid ground for curtailing exports. The advocates of an immediate restrictionist policy in exportation altogether neglect the depressing influence of such restriction on the economy and under-estimate the frictions of a change-over to a new policy. Britain's liberal policy of foreign lending before 1914 and the much restricted American

policy of the same kind in the inter-war period did not have philanthropy at their back, but only self-interest. In India too self-interest and solicitude for the agricultural industry would demand the adoption of a similar policy to sustain the export trade.

From the point of view of India's future industrialization too accession to the scheme would seem to be imperative. The capital required for industrial development has to come to an appreciable extent from foreign countries. In fact the Bombay plan for industrial development specifically relies on foreign capital for this purpose. Such capital can be more easily got by India joining the projected World Bank than by independent negotiation. The provisions relating to that Bank are only in their early stage, but from what has already been said it would appear that membership of the monetary organization is a condition of membership there. This is perhaps in conformity with the policy the Sterling Bloc adopted when it was formed, of placing restraints on the freedom of non-members in floating loans in the London market. Any capital coming into India must necessarily come from the USA and a little later from the United Kingdom, and since both these countries seem to be serious about the creation of an international monetary organization, membership of that body may be laid down as a condition of help.

It is also necessary that India should be a member right from the start. Delay in the attainment of her full political status need not act as a hindrance, if her future status receives recognition immediately and she is given a place consistent with that status. The suggestion sometimes made that the inauguration of the scheme should be postponed to 5 years after the signing of the armistice to enable the world to solve the problem of relief and rehabilitation and to settle down to a more stable economic and political life does not seem to have much in it to commend itself. Apart from its long range usefulness, the scheme is ostensibly meant to help countries to tide over that difficult period, and if they manage somehow to muddle through without receiving such help they will find little use for it afterwards. Any such scheme involves the sacrifice in some measure of a State's autonomy and the immediate post-war period is the singularly appropriate time politically and psychologically for its inauguration. Nor is there much point in the suggestion that India should postpone accession till after the question of the standard and the rate of exchange

is finally settled⁵ India's problem is not peculiar here. The question of the appropriate rate of exchange bristles with difficulties, no doubt, but it would be sufficient if provision is made in the plan for a final settlement of these rates after the lapse of an adequate period

It is a little difficult to calculate India's quota under the American plan, for though the aggregate value of all the quotas is known it is not yet known how many countries will participate in the scheme. However on the basis of national incomes, gold holdings and fluctuations in international payments India's quota will be about equal to the British quota and will be about $\frac{1}{30}$ of the American⁶ The quota distribution in the American scheme is evidently very uneven. The U S A will have a very large share of the total quota and other countries will have less than their requirements. It is very unlikely that the Indian quota will be enough to maintain her export trade even on the inter-war scale. Part of this quota has to be paid in gold, and since the absolute value of the quota cannot be calculated now, it is not possible to say whether the gold portion will be 30 or 50% (according to the revised plan). India occupies the ninth place in the world to-day in the matter of holding of monetary gold and so it is likely that the percentage will be nearer 50 than 30. Parting with this quantity of gold would have meant under the original American plan deflation of internal currency and attendant depressing influences. Fortunately, the revised plan permits the inclusion of the gold contribution to the quota in the legal reserve account of the Central Bank. Joining the scheme, therefore, will not involve deflation or a change in the legal reserve ratio.

In the British plan India's quota will be roughly \$506 million, about $\frac{1}{6}$ of the British quota and $\frac{1}{5}$ of U S A's. A quarter of this quota will be \$126 million or Rs 42 crores. This will hardly enable the country to have an export surplus on trade account on the average inter-war scale which was Rs 52 crores⁷. Part of this surplus will be offset by payments which India may have to make in respect of insurance, banking and shipping services rendered by foreigners. After making allowance for these

5 V K R. V Rao. India and International Currency Plans, p. 26

6 On the basis of a rough unweighted calculation.

7. V K R. V Rao. India and International Currency Plans, p. 21.

and making allowance also for a complete repatriation of our sterling debt and a reduction of Home Charges to the vanishing point, this quota will not enable the country to maintain an export surplus on the normal inter-war scale at present day prices. The possibility of India importing more goods, especially capital goods, in the post-war period should not be left out of the calculation. But it should also be remembered that her large sterling balances will for sometime to come, pay for all her imports of capital goods. In all probability she will have an exportable surplus in excess of quarter of her quota. By and by it may be possible to reduce the surplus as her economy gets adjusted to her new role. In the immediate future however she can place very little reliance on her ability to lend abroad, for her creditor position is altogether nominal, enforced on her by the exigencies of war and attained through tremendous sacrifices on the part of her nationals. Nor can she import large quantities of consumption goods without jeopardizing the success of her expanding industries. The only satisfactory economic policy consistent with her industrial aspirations would be a steady decrease in her export trade spread over a period of time. Such a decrease is not immediately desirable or possible and coming on top of demobilization will be fraught with serious consequences to the economy. Therefore for the maintenance of her export surplus she needs a sufficient quota. If through a special assessment on the basis of population, national income and foreign trade she is given a larger quota she should welcome it.

The maintenance of exports against a bancor credit balance may mean the continuance or repetition of the situation existing in India now—an expansion of currency with bancor backing and a consequent rise of prices. But this alternative is preferable to the deflationary effects of restrictionism and can certainly be avoided if systematic resort is had to open market operations. To further safeguard the position the provision of the Canadian plan requiring the surrender of appropriate quantities of gold or foreign exchange for an overdraft in excess of half the quota may be included.

On the question of management India should demand modifications in the British plan. Here voting power is related to the quota of each country and it is specifically stated that only countries with the larger quotas will have independent representation on the Governing Board. This arrangement would appear to be most unreasonable. The quota of the British plan is not a contribution

that the country makes as in the American, but the measure of the overdraft permissible to it. To make that the basis of voting power is to give the whip hand to the debtors. If it is unthinkable that in a joint-stock bank the largest debtor of the bank should have the largest voting power, such a position is equally unthinkable in the proposed currency union. The proposal is calculated to confirm the natural suspicion of small powers that all international schemes are specifically designed to maintain the statusquo and perpetuate the economic hegemony of the Great Powers. India should as a condition of entry demand equal and separate representation for all member states on the Governing Board. Even under the existing provisions India may have separate representation. Excluding the enemy states, next to the United Kingdom and the U.S.A. India will have the largest quota, and so she will in all probability secure a permanent seat. But if on the ground of inferior political status she is to be denied that, it would not be worthwhile for her to enter the scheme at all. Political grouping with other Empire countries would be decidedly against her interests, for many of the colonies are her fierce competitors for export markets.

In addition to separate representation she should have equal voting power with others. The way the Union is to be constituted demands that. The Union will acquire powers over domestic policy hitherto untried, and national safety requires that in the determination of common policy all states should have an equal voice. According to certain estimates, the United Kingdom will have 16% and the U.S.A. 14% of the total votes⁸. The United Kingdom with her Empire countries can easily dominate the Union. This, by all means, should be prevented.

The relation of voting power to the quota of each country is in harmony with the general constitution of the American Fund, for it is based on the well-known business principle that the larger contributors should have the larger powers. But, as has been indicated already, the great inequality which characterizes the distribution of quotas in the American plan gives a predominantly large share of power to the U.S.A. Though the maximum limit of one-fifth of the aggregate basic votes is laid down for any

⁸ J. H. Riddle in an unpublished memorandum quoted by I. De Vegh—*The American Economic Review*, p. 538.

country regardless of its quota and though the 4/5 majority vote of the original draft has been reduced to 3/4 in revision, the U.S.A. can in conjunction with other Pan-American interests veto all proposals not to their advantage. If the American plan is to be made acceptable to smaller states and backward countries the dominance of American interests should be removed.

Provisions relating to the rate of exchange too require detailed scrutiny from the Indian point of view. These provisions fall into two groups, those relating to the initial determination of the rate and those others relating to subsequent alterations. In the British plan the fixing of the initial rate is left to be determined by agreement between the Union and the country concerned. This gives sufficient leeway for India to choose a rate that will be most appropriate to the internal situation then existing. The link with the sterling which will probably continue till the end of the war presents however some special difficulties in this matter. The continuance of the Sterling Bloc is consistent with the inauguration of an international monetary organization. But the question is whether any useful purpose will be served by continuing such blocs and whether in the particular case of India the continuation of the link will in any way be advantageous or necessary. In the past the signal service of the link was that it offered unique facilities for Indian trade with Empire countries and it eased the budgetary problem of meeting the external obligations of the Government of India. The total absence of the problem of external payments in the post-war period and the diversion of India's foreign trade from Britain to other countries in spite of artificial supports especially noticeable in the inter-war period, would both cast a doubt on the advisability of maintaining the sterling link. India's economic aspirations of the future and the growing divergence of the interests of the two countries also point to the necessity for a change. Moreover, the sterling is no longer the strong currency that it was. All these indicate that no useful purpose will be served by continuing the link.

Successive committees and commissions have advocated a gold standard for India, and now that the leading countries of the world are thinking of reviving the standard after the war in some form or other, India should take advantage of the opportunity and establish a gold standard. But it is very doubtful whether sufficient gold to serve as backing for the greatly expanded currency can be found immediately. So the most

advantageous course for her will be to link her currency to the *bancor* in a fixed but not unalterable relation and thus effect an indirect link with gold. This will facilitate, as will be explained later, the treatment of her huge sterling balances. The rate should be determined in the light of the situation existing at the time of entry.

The American revised proposal of adopting the rate of exchange which prevailed in July 1943 is altogether unacceptable to this country. The rupee is overvalued in terms of sterling to-day and the overvaluation is likely to be of even greater degree by the time the war is over. While the rupee sterling rate has remained steady throughout the war period, the internal purchasing power of the rupee as revealed by the price index compiled by the Economic Adviser to the Government of India had depreciated by 58.9% by the end of June 1943. The internal purchasing power of the sterling had depreciated during that period by only 36.8%⁹. The sterling too is overvalued on the dollar-sterling cross rate. That rate changed unfavourably to Britain in the early days of the war by 12 to 13%. Since then through severe and complete exchange control the rate has been maintained steady between 4.02½ and 4.03½ dollars to the pound. The rate of depreciation registered on the exchange has little relation however to the depreciation of the internal purchasing powers of the two currencies. The internal depreciation of the dollar by the end of June 1943 was only 26% as against 36.8% of the pound. In terms of the dollar therefore the rupee is very greatly overvalued and it will be most disastrous for the domestic economy of the country to accept that rate. It would mean a severe deflationary effort of perhaps the same magnitude as was enforced on Britain in 1925 by the mistaken policy of stabilization at the pre-war level.

Provisions relating to the subsequent revisions of the rate are the most difficult to harmonize with the national interests of the different countries. Here again the British plan is more elastic. Both plans contemplate a revision of the rates during the experimental period—three years in the American and five years in the British plan. Whether it is three years or five years the

⁹ On the basis of the index number of wholesale prices of all commodities published in the Federal Reserve Bulletin.

period is arbitrarily determined, and the question is whether a three year or a five year period is adequate for countries to settle down to a stable level. The last post-war boom went on intermittently for 11 years, and if past experience is any guide, the suggested periods are too short. But history may not repeat itself, the very existence of the international organ helping to shorten the period of adjustment. On the whole however the five year period gives a safer margin than the three year period. It will give India sufficient time to attain her full political status and take decisive action in currency and industrial policy.

The degree of change unilaterally permitted to a debtor country is 5% in the British plan. A repetition of this or a larger degree of change requires the approval of the Board. The American plan is very rigid, requiring the approval of the Board for any change, by a simple majority vote up to 10% during the first 3 years and thereafter by a 3/4 majority vote. Of the three plans the Canadian is the most elastic in this matter. It requires only a simple majority vote for the decisions of the Governing Board and permits a unilateral change by 10%. No plan specifically lays down the maximum degree of change the Board can approve. The matter will obviously be decided on merits in each individual case. But the point is whether the Board can be relied upon to permit a change at the appropriate moment and in the requisite degree. The example of the Tripartite Agreement in delaying French devaluation when the country urgently needed it, is not particularly reassuring in this connection. There is no guarantee that identical tactics will not be adopted by the Board to prevent changes in the rate. It is necessary therefore that every country should retain the power to effect a unilateral change in the rate up to a certain maximum. The maximum has to be arbitrarily determined, for little guidance can be got from the devaluations of history. The devaluation of the Franc of September 1936 was of the extent of 25·19 to 34·36%¹⁰. The further devaluation effected in May 1938 was by 39%. The American devaluation of 1934 was by 41 %¹¹. It does not seem possible to give freedom to members to depreciate currencies on this scale without jeopardizing the

10 Paul Enzig World Finance 1935-1937, p. 233

11 Calculated from the change in the dollar price of gold from 20 67 a fine ounce to 35 a fine ounce—Federal Reserve Bulletin, September 1943, p. 903.

existence of the Union, nor would such major devaluations be needed unless abnormal conditions supervene. With flights of capital effectively prevented—and that is one of the purposes of the organization—moderate changes in the rate would be all that would be necessary to restore equilibrium. The Canadian proposal of a 10% unilateral change would in most cases serve the purpose, but it should be made applicable both ways to enable a country to appreciate currency too. The Indian problem in the immediate post-war period may conceivably be one of undue pressure exerted on her for goods needed by the world at large. To ward off that pressure in national interests and to prevent consequent inflation she should have the freedom to appreciate her currency even before her credit balance with the Union exceeds half the quota. In the American plan this is achieved by the rationing of the scarce currency and by the requirement that the sale of such currency should receive the approval of the country concerned. A corresponding safeguard for a creditor country is needed in the Clearing Union.

The above proposal, however, must be distinguished from another that has been made that freedom should be given to each country to have flexible rates of exchange, the range of fluctuation permitted being 10 or 15%¹². This latter suggestion, by bringing into existence unstable rates of exchange, will introduce an element of uncertainty into trade relations. It is not calculated to generate confidence, but will on the other hand make the conduct of trade extremely risky. The whole purpose of the international organization, viz., to ensure stability of exchange rates, will be defeated by the inclusion of this provision. It is contrary to the letter and the spirit of the scheme. But the 10% change either upward or downward is a clean and simple departure from an earlier rate. Before and after the change stable rates will prevail.

In addition to this there should also be a provision allowing the Central Banks concerned to pass on the one per cent penalty payable on a credit or debit balance to the importers of goods. This may be done by the Central Bank of the debtor country shifting the penal rate on to the price of foreign exchange made available to the importers and the Central Bank of the creditor

country deducting the penal interest from the local currency paid to the exporters. The exporters to safeguard themselves will naturally add the deduction to the price of the commodity. Probably the intention behind the penal interest is just this, but nothing is lost and something is gained by the inclusion of a specific provision. This will be one way of generating the minor fluctuations in the rate required by the scheme.

Such automatic correctives become almost imperative in view of the fact that under the British plan there does not seem to be any limit to the credit accumulations of a country. The overdraft facilities available to a debtor country are within specified limits. These limits will operate on the credit side also as far as total credits are concerned, for at no time can total credits be different from total debits. But it is quite within the provisions of the plan for a single country to be the creditor of all the others. The failure to specify a maximum for single credit balances may spell danger to a country like India. She cannot stand the strain of excessive demand for goods. Already during the war period she is being put to that strain and the continuance of that strain, even after the war, is more than what her nationals can acquiesce in. The danger would appear to lie in the un co-ordinated nature of trade transactions. Exporters will sell at highest prices whether the buyers are foreigners or nationals, with the net result that the country will have a high level of prices together with an absolute scarcity of goods for internal consumption. It is therefore essential for India to begin to apply the correctives as soon as a quarter of the quota is exceeded without waiting for the Board to recommend equilibrating action.

The remedial measures specified for a creditor country under the British plan are (1) expansion of domestic credit and domestic demand, (2) appreciation of currency in terms of *bancor* or alternatively an increase in money rates of earnings, (3) reduction of tariffs and other discouragements against imports and (4) international developmental loans. For a poor country like India with a low per capita income the last is clearly ruled out, and the third would be so inconsistent with her policy of industrial expansion that it too can hardly be thought of. The other two are the only possible ones, and of the two, appreciation of currency is fraught with less serious consequences. A simple overvaluation of the rupee on the exchange without any deliberate attempt by the Central Bank to bring the internal and external values of the rupee into harmony will leave the internal situation of the

economy unaffected while it wards off foreign demand for the country's products. Some burden will be imposed upon the consumers through the rise of prices of imported goods, but that is inevitable for the attainment of the desired end. In order to be successful, however, the degree of appreciation should be adequate and the Governing Board should have the good sense to recommend a corrective that will serve its purpose. All this can, of course, be avoided if the country concerned has the option to prohibit the exportation of goods altogether. In spite of its evil savour this course of action will be simpler, more direct and more unfailing and there does not seem to be anything radically wrong in granting this right to a creditor country as a reserve power to be used when the other method proves unavailing.

To sum up, India should demand as a condition of entry the following modifications in the British plan:—

- 1 A special assessment based on population, national income and foreign trade

- 2 Separate representation and equal voting power for all member states on the Governing Board

- 3 The right to change the rate of exchange within 5 years from the termination of war after consultation with the Governing Board

- 4 Power to the Central Banks of member states to alter the rate of exchange suitably so as to pass on the burden of the penalty of one per cent to the traders concerned.

- 5 The right to give effect to a unilateral change in the rate by 10% either way if the bancor credit or debit balance has exceeded $\frac{1}{4}$ of the quota on the average of at least 2 years

- 6 The reserve power to creditor countries to prohibit exports when corrective measures already taken prove ineffective

- 7 The delivery of a country's own obligations as security for a debit balance up to quarter of the quota.

- 8 The surrender of an appropriate amount of gold or acceptable foreign exchange for all overdrafts in excess of half the quota

9. A collective guarantee of the bancor by member states.

III

The American plan includes detailed provisions for the regulation of abnormal balances held by some countries in others. The British plan contains only the brief statement, "that they constitute a problem of considerable importance and special difficulty" and that "there should be some special over-riding provision for dealing with the transitional period only by which, through the aid of the Clearing Union, such balances would remain liquid and convertible into bancor by the creditor country whilst there would be no corresponding strain on the bancor resources of the debtor country." It is significant that a plan prepared by the experts of a debtor country should omit the detailed consideration of this problem. Is it because it still defies solution by them or is there the implication that at the termination of war the only thing that can happen to these balances is cancellation? In view of what happened to German reparations and inter-allied debt in the last post-war period and in view of this inexplicable silence, the suspicion is natural. To India this matter is of vital importance, for curiously enough she holds a fairly large amount of these balances—an amount that is out of all proportion to her ability to lend—and the loss of this through cancellation would mean a moral and an economic shock to her. The sterling securities in the Issue Department of the Reserve Bank of India are estimated to rise to 950 crores by 31st March 1944, an increase of 890 5 crores over the pre-war figure¹³ Before the war is over the figure may rise to a very much higher level if the Financial Settlement between the two governments continues to be in operation. This is a sum of money which the country can ill afford to lose. It is essential therefore that a detailed examination should be conducted with a view to discovering the way in which the Clearing Union can be of aid in solving it.

The American solution for the problem is the purchase of these balances by the Fund from the country which holds them in exchange for local currency and the retransfer of 80% of the balances thus purchased equally to creditor and debtor against gold or such free currencies as the Fund may wish to accept over a period of twenty years at the rate of 2% per annum beginning from 3 years after the date of purchase. The remaining 20% will evidently be cancelled, but the Fund will be more than reimbursed by the penalty of 1% payable by both creditor and debtor on the amount of blocked balances sold to the Fund and also by the

13 Finance Member's Budget Speech, March 1944.

charge of one percent annually levied on debtor and creditor on the amount of such balances remaining to be retransferred. According to these provisions, the debtor will pay in all 90% of the balances in gold out of its trade, 50 to the Fund, 40 by way of purchase money and 10 by way of penalties, and 40 to the creditor. The creditor will receive full value in local currency from the Fund at the time of purchase, but will subsequently have to pay to the Fund 40% of value in gold for repurchase and 10% by way of penalties. It can however collect the 40% in goods from the debtor country. The original plan contemplated the purchase of all such abnormal balances, but in the revised plan the purchase is limited to 10% of the aggregate of the quotas of member states during the first two years of operation. The very large size of the balances has obviously necessitated this limitation.

These provisions are not sufficiently explanatory and have been made unnecessarily complex from the desire to have the joint guarantee of both debtor and creditor. It is not known how the Fund will secure the local currency needed for purchase. Since in the revised plan purchase is limited to 10% of the quotas, the required local currency may be taken out of the quotas. But that would reduce the Fund's holding of such currency, necessitate rationing and restrict the export trade of the creditor. Alternatively the Fund may borrow the needed local currency from the country concerned and keep that as a separate transaction. In that case the creditor country will merely be substituting the Fund's debt for the original debt, and in the absence of a guarantee that the debt will be liquidated in gold it would not be better off than before. The situation will be eased, however, if the country selling the abnormal balances runs up a debit balance with the Fund and provides the Fund with sufficient quantities of its currency. The requirement that the creditor should import goods in order to utilize these balances is perhaps implicit in the plan. The country will then find that the transfer of the balances to the Fund enables it to secure general purchasing power in exchange for some specific purchasing power.

The idea underlying these provisions seems to be fourfold, viz., that the creditor should secure immediate use of the balances, that the strain on the debtor should be spread over a period of years, that the creditor should purchase goods from the debtor up to a certain percentage of the debt and lastly that the Fund should be fully safeguarded. Of these purposes it is extremely doubtful if the first is advisable even from the creditor point of view. In India, for instance, where these sterling balances serve

as backing for currency in circulation, their immediate utilization would involve severe deflation. The substitution of *ad hoc* rupee securities for sterling securities as has been hinted at by the Finance Member in his recent budget speech will not really solve the problem unless the Government itself becomes a very large buyers of goods for investment purposes. If Government is the buyer all that it has to do is to pay for the goods in sterling and substitute *ad hoc* securities as backing for currency. But if importation is on private account and on a very large scale the rupee payments made by the importers to the Bank for sterling or other foreign exchanges will be so much reduction of currency in circulation the off-setting of which by open market operations will be attended with slender success. The amounts involved are so large. To avoid this and also to avoid the strain on the rest of the world, especially the debtor country, it is essential that the release of these balances should be gradual.

The other purposes underlying the American provisions can equally well be served by an agreement between debtor and creditor outside of the monetary organization. But in all such agreements the danger of unilateral blocking or even of default or repudiation is always present, and so it seems safer for the creditor country to receive the guarantee of the organization for the debt and convert at least a part of the balances into general international purchasing power. These objects may be secured in the Clearing Union by the following or similar provisions.

The creditor country should transfer the balances to the Clearing Union in return for a special *bancor* credit balance bearing interest at 1 or $1\frac{1}{2}\%$ per annum releasable over a period of twenty years at the rate of 5% per annum commencing from 3 years after the transfer. Of the annual releasable quota half should be made available to the creditor in original balances and the other half for transfer to other accounts in the Union. The debtor country would have a corresponding special *bancor* debit balance with its own interest bearing securities as backing surrendered by the debtor or delivered by the creditor if it already has them. The debtor should agree to liquidate the debit at 5% per annum over the same period, half in local currency and the other half by off-setting with other accounts of the Union. If the period is considered too long it may be reduced to ten or fifteen years and the percentage of annual release correspondingly increased. The rate of interest may be fixed at a convenient point so as to leave a margin of difference between what the Union earns on the securities and what it

pays on the credit balance. This margin will reimburse the Union for all its incidental expenses. If necessary, bancor securities bearing the prescribed interest may be delivered to the creditor. These provisions will mean the gradual utilization of the balances and an insistence on the creditor importing goods including bullion to the full value of the balances half of which at least should be from the debtor country.

For India this plan would mean the substitution of bancor securities for sterling securities as Central Bank reserve and an opportunity to import goods and bullion up to half the value of the balances from anywhere and to carry on an import trade with the debtor up to the remaining value. The danger arising from the development of a seller's market in the debtor country is there, no doubt,¹⁴ but in the absence of the Clearing Union's aid that danger will be greater. If the truth is borne in mind that the creditor country cannot realize its credits without importing goods and the debtor country cannot pay except in goods, this compromise will be seen to be of advantage to both. As and when the bancor credit is liquidated by importation of goods and bullion into the country the Central Bank should utilize the money it receives from importers to buy bullion within the country and convert non-monetary into monetary gold. The time will then be ripe for the adoption of the full gold standard in India. In the interim period requisite modifications of the Reserve Bank Act should be made.

P. S.—

Since this paper was sent to the press events have moved quickly. The U S A and the U K experts issued an agreed statement and the Monetary Conference summoned by the American President met at Breton Woods. It is regrettable that the compromise effected is different from what this paper advocates. American influence and the need to placate American interests have been too strong for the U K experts and they have had to give up their cherished desire of seeing the world freed from its bondage to gold. Monetary orthodoxy dies hard, and to use the words of Edwin Cannan, the world still prefers to be barbarian. In spite of the increase in the aggregate of quotas to \$8 Billion, the new scheme appears to be less expansionist than even the White Plan, and gold still plays a dominant part. But member states are vouchsafed greater freedom in the determination of domestic policy and in the initial fixing and subsequent alterations of the rate of exchange. The Indian quota has been fixed at \$400 Million, inadequate for her needs, with five countries above her, thus denying her a permanent seat on the Executive Committee. But the most unfortunate part of the new scheme is the elimination of the question of abnormal war balances altogether. This greatly reduces the value of the plan to India.

AN INSCRIPTION FROM PAṬṬADAKAL

By

K A NILAKANTA SASTRI

The inscription edited below was first noticed by Fleet in his *P, S, and O-C, Inscriptions* as No 55 and again edited by the same talented epigraphist as No CIV (IA x pp 166-7) in his Series of *Sanskrit and Old Canarese Inscriptions* in the *Indian Antiquary*. When I read this last edition of the record, I felt that the inscription deserved to be better known, and wrote to Rao Bahadur K N Dikshit, the Director-General of Archaeology, requesting him to procure for my use an impression of this inscription. I am grateful to him and to Dr N P Chakravartī, Deputy-Director-General, for the promptness with which they arranged the taking of a fresh impression and its despatch to me, and for the readiness with which they accorded me permission to edit the inscription in the *Journal of the University of Madras*.

The inscription comprises five lines of writing engraved on the back face of the front pillar of the Virūpākṣa temple at Paṭṭadakal in the Bijapur district of the Bombay presidency. The same pillar bears on its front face an inscription of Lōkamahādēvī, the queen of Vikramāditya II, in characters that closely resemble our inscription as may be seen by a comparison of the facsimile given here with that of the other inscription reproduced by Fleet at IA x, opposite p 165. And it is perhaps no accident that the two inscriptions on this pillar are closely related in their subject matter. The inscription on the front face is a confirmation by the queen of the privileges which her father-in-law, Vijayāditya, had conferred on the singers of the temple (*gāndharvargge*); our inscription engraved on the back, relates to the subject of dancing. The temple of Lōkēśvara, the former name of the present Virūpākṣa, was built, or rather rebuilt, on an elaborate scale by Lōkamahādēvī¹ and most of the inscriptions in the temple are coeval with the present structure and belong to the early

years of the eighth century A.D., and this is also most probably the date of our inscription which bears no date.

The language is Sanskrit, written in fairly correct, high flown classical style. The form *Simgha* (1 2) for *simha* may be due to the influence of the popular speech of the time. A visarga is omitted at the end of l 4. The inscription is made up of two verses in the *Āryā* metre.

The engraving has been on the whole very carefully done; only the letter *na* in *paranata* in the second line was omitted in the first instance, and inserted later a little below and between the two adjacent letters, and this accounts for its position and unusually small size. The ligatures *sphu* and *hpa* with the *upadhmānīya* may be noted. Fleet read the first ligature as *spu* and corrected it into *sphu*, but this is not necessary in view of the hook attached inside *pa* to its right arm, clearly seen in the impression. He also read *natu* in the first line and corrected it into *nata*, but this again is not necessary—cf. *ta* here with *ta* in *nata* at the beginning of the second verse and *tu* the penultimate letter in l 3. The spirals at the beginning of the record and the ends of the two verses show that the spiral was used both as an auspicious symbol and as a stop. Fleet read the last word in the inscription as 'Achalade' but what was taken to be *da* by him is clearly not *da*, but possibly another stop mark indicating the end. Achala is obviously the name of the composer of the verses.

Summarising the two verses Fleet said that they were 'in praise of Achaladeva-Bharata, the author of a work on dramatic composition'. His own translation of the inscription did not bear out this statement and the name Achaladeva-Bharata is not warranted by the text. What we have in reality is a eulogy by Achala of an unnamed author who composed a work on Nāṭya, acting on the stage, in which he closely followed the views and tradition of Bharata, and this work was effective in putting a check on the prevalence of other schools of acting. Acting was an ancient art in India, and it is well-known that a *nata sūtra* of Śilāli is mentioned by Pāṇini². Allowing for the exaggeration of the poet, we can still see that the differences between the schools were rather matters of acute controversy at one time, and that the

ॐ नमो भगवते वासुदेवाय ॥ १ ॥
नमो भगवते वासुदेवाय ॥ २ ॥
नमो भगवते वासुदेवाय ॥ ३ ॥
नमो भगवते वासुदेवाय ॥ ४ ॥
नमो भगवते वासुदेवाय ॥ ५ ॥
नमो भगवते वासुदेवाय ॥ ६ ॥
नमो भगवते वासुदेवाय ॥ ७ ॥
नमो भगवते वासुदेवाय ॥ ८ ॥
नमो भगवते वासुदेवाय ॥ ९ ॥
नमो भगवते वासुदेवाय ॥ १० ॥

new work on *nāṭya* rendered the triumph of the Bharata school complete. We thus get a tantalising peep from this record into a forgotten chapter in the history of the Indian stage, but we have no information vouchsafed about the author of this triumph of Bharata in Western Deccan in the eighth century A D; we do not even know the name of the work or the language in which it was composed, which might have been either Sanskrit or Kannada

TEXT

- 1 Bharata-nuta-vacana-racanā-viracita-nata-sēvyā
- 2 śiṃgha-nādēna, para-nata-madāndha-hastī-parihīna-madō
- 3 bhavatyēva || Nata-sēvyā-Bharata-mata-yuta-patuta-
- 4 ra-vacan-āśaṇi-prapātena, kuṭil-onnata-nata-śaila (h)
- 5 sphuṭit-ānata-mastakah-pataḥ || Acala |

TRANSLATION

The elephant, blind with rut, which is an actor of another school, is indeed deprived of his frenzy by the lion's roar of (*the rules*) that are to be observed of actors, framed in accordance with the arrangement of the celebrated sentences of Bharata. The mountain which is a crookedly eminent actor, falls down having its crest (head) broken open and bowed down by the fall of the thunderbolt which is a most skilful composition following the tradition (*mata*) of Bharata worthy to be observed by actors — Acala (Fleet's translation slightly altered)

THE TERRIBLE MOTHER. A PSYCHOLOGICAL STUDY

By

DR. G D BOAZ

There is ample evidence to show that one of the most primitive forms of religion was the worship of goddesses in general and of the mother goddess in particular. Mother-goddess worship in diverse forms seems to have been prevalent almost all over the world.

A study of these mother-goddess cults with the accompanying ritual is very fascinating to the student of the psychology of mother-child love. Modern researches and clinical practice have brought out the extreme importance of this first sentiment of the child and the great part it plays in shaping most of the subsequent sentiments of love and hate in the individual. The mother symbol is enthroned in the very heart of man. Man's perception of motherhood in divinity followed naturally from his recognition of divinity in motherhood. The mother-child relation is the prototype of God's relation to man, so much so, we can say that the child's first call to religion comes from the realm of the mother. The sanctity of motherhood finds its fulfilment not only by imprinting upon the deeper layers of the human psyche a craving for religion but also in evoking a religious response by acting as a divine stimulus. Anthropologically, it may be right to say that the earliest divinity known to man was the mother-goddess, but from the religious point of view it is more correct to say that man first perceived the qualities of motherhood in God-head, his early experiences with his actual mother forming the empirical foundation.

Thus most of the characteristics of the primitive mother-goddess have been derived from the nature of the mother image which reigns supreme in the depths of the human mind. Even a casual study would reveal the various ways by which the benevolence and tenderness of the mother and of the mother-goddess are conceived and expressed by the human mind. But one also notices the qualities of destruction and anger with which the human mind has clothed its first apprehension of God-head, the figure of the mother-goddess. Though this tendency is common

to other parts of the world as well, perhaps it is true to say that it has reached its climax in India. The gentle and lovable Uma or Parvatī becomes the terrible Kali or Durga. In the latter aspect she is clothed with all possible ideas of horror and terror. With a garland of skulls round her neck, with children as earrings, soaked in blood, with the tongue hanging out, hands of human victims dangling round the waist and dancing madly in the cremation ground, sometimes over the body of her own husband, Kali indeed presents the most grotesque and horrible figure that human mind could conceive.

‘The dread mother dances naked in the battlefield,
Her rolling tongue burns like a red flame of fire,
Her dark tresses fly in the sky, sweeping away sun and stars,
Red streams of blood run from her cloud-black limbs,
and the world trembles and cracks under her tread’
And yet, it is the same goddess of whom it is said,
‘But we think of thee
As the untraversable ocean of mercy and nothing else’
(Tagore)

What, then, is the basis of such a character in the experience of the child? Can we find it in the very nature of the empirical mother image? A strange feeling of terror towards the mother has been observed in psycho-analytic practice and ample discussion on this point can be found in the writings of some psychologists, notably in those of Jung and his followers. (In many psychopathological conditions, attitudes of love and fear towards the mother come to a sharp conflict without being properly co-ordinated. We shall presently discuss this ambivalent relation more fully. We may recall, however, the strange fact of addressing the witches of Europe as mothers, which is only a reversal of the process of conceiving a cruel and terrible mother.) Hence the mother is sometimes also conceived of as terrible and as one who destroys and kills. Jung explains this ambivalent feeling of the child toward the mother as arising from the corresponding ambivalent nature of the mother, or as he puts it, “the dual role of the mother.” Explanations of this dual role have been suggested by various people in different contexts. We shall consider here some of these theories put forward to explain this projection on the mother-goddess (or on the mother) of qualities that are calculated to strike horror and to create awe in the minds of men.

(1) Freudians find in this process what they call a castration anxiety. Strictly speaking this castration anxiety can only form part of the father-image and make the son hate his father. But no doubt it is true that if there is such an anxiety it can be projected on the mother also, if there was adequate reason to identify her with the father. The daughter will develop (according to this theory), a direct hatred of the mother because of the latter's 'stealing' the father from her, and the son through an identification of the mother with the father. Referring to the dance of Kali in her fearful aspect, Dr Money-Kyrle, a Freudian, says, "Of this, at least, we can be fairly confident that Kali was a phallic goddess and that she castrated and destroyed her consort. No psycho-analyst could question this interpretation"¹. And he bases this interpretation on the meaning he gives to the skulls with which Kali is bedecked. He says that the skulls are the phalli of her sons. (Yet another phallic symbol!) Without discussing Freudian theories in any detail we would simply point out here that they have no universal application and that the Freudian analysis of mother-child attachment is true of only certain particular forms of society presupposing a particular ethos. The whole interpretation seems foreign and even fantastic, for the simple reason that there is no evidence for such a nuclear Oedipus complex in the unconscious of the Indian mind which created those figures and stories of Durga and Kali.

(11) A more common explanation of this ambivalence (or the dual role of the mother) is that it represents the changes in the seasons and the whims of Nature. It is true that in a country like India we get extremes in seasonal changes which are sometimes unbearable. Mother Nature can be seen in her gentle and nourishing aspect in one moment and in the next moment in the garb of a fearful and mighty ogress, threatening to destroy the whole earth. In fact life and death seem to go hand in hand. It is not difficult to imagine, in some parts of India, a pleasant evening when life runs smoothly and all is peace, suddenly clouds gather up bringing death and darkness in their train, sweeping away life in a torrent of flood, storm and lightning, adding to the toll. It is possible then to find a partial explanation of the dual and contradictory nature of Durga in these vicissitudes of Nature. But these phenomena cannot offer a complete and ultimate

1. 'The Meaning of Sacrifice' London, 1930, p. 101.

explanation This dual role of Nature cannot be so strongly projected on the mother-goddess unless such a duality was also found either in the very nature of the mother-image, or in the attitude of the child to its mother Worship of Durga or Kali is no mere reverence for a personification of the energy of Nature

(iii) A variation of the above explanation is the suggestion that the figure of the terrible mother can be found in the birth-pangs of the mother In Nature death and destruction are but the prelude to new life The terrible aspect is only the outward expression of the 'groaning and travailing in pain when giving birth to a new life Can it be that for a moment the mother, out of the pain of delivery, curses the husband and the child and wishes, as it were, the death of humanity? It is with this phenomenon in mind that B C Bhattacharya explains the wild dance of Kali as the darkness which enveloped the universe at the time of creation² In her fierce aspects Kali is always represented as of black complexion That this black complexion may stand for the darkness of the pain of delivery is supported by one of the stories in Markundaya Purana where we are told that Ambika comes out of the body of Parvati and that as a result of it she becomes black Some people have objected to this explanation saying that it results from an unacceptable allegorical method of exegesis We do not agree with this objection in-as-much as it is an attempt to find the explanation in the depths of reality, in the very nature of the archetypal mother image At the same time we are not able to find this as the full and sole explanation There are other theories with equal claims

(iv) Yet another theory, which ultimately is not different from the above two, is suggested by Elliot Smith while discussing the legend of Re and Hathor, in which the destructive Sekhmet (Hathor herself) is represented as a fierce lion-headed goddess of war, slaughtering mankind and wading in blood He finds the meaning of this legend in the ancient Egyptian practice of killing the king when his vitality showed signs of failing The king is slain in order to preserve and release the life-giving energy The goddess destroys and kills so that she may preserve the life of the community The killing itself is an act of bestowing life "Thus the Great Mother, the giver of life to all mankind, was

faced with the dilemma that, to provide the king with the elixir to restore his youth, she had to slay mankind, to take the life she herself had given to her own children. Thus she acquired an evil reputation which was to stick to her throughout her career. She was not only the beneficent creator of all things and the bestower of all blessings, but she was also a demon of destruction who did not hesitate to slaughter even her own children"³ This legend of Re and Hathor (Sekhmet) is not without its parallel among the stories narrating Durga's adventures, though there are some important differences. Instead of the goddess herself being lion-headed, Durga rides on a lion, and instead of mankind in general it is the demons who are the victims of her anger. And we have the same picture of torrents of blood flowing through which the victorious goddess dances to battle. One of the demons whom the goddess Durga kills is himself called Durga (According to popular tradition Parvati gets the name Durga from this incident). After the fierce and bloody battle in which the goddess finally kills the demon and all his hosts, she is so mad with frenzy that the gods become terrified that she might destroy the whole universe and send Shiva to appease her. But all these parallels between the two legends and their variations are beside our consideration. An important factor which is relevant for our present purpose is common to all the accounts of the battles of the Indian goddess against different demons. Invariably the demon or demons become a menace to the life and power of the gods. It may be that by their own power they defeat the gods and dethrone them or it may be, as in the case of the demon Durga, that the gods are challenged and ill-treated with the help of a boon from Brahma himself. In all cases the demons disturb the sacrifices made to the gods, rob them (the gods) of their due share and vanquish them from their heavens. Thus the life and very existence of the gods become threatened and they all appeal to the goddess. With the slaying of the demons the gods are restored to their position and they are able to revive their sacrifices and thus maintain their life. Thus in these stories we may find a fairly strong basis for the theory that the goddess assumes the role of destruction in order to restore the life of the gods. But we still have a few more theories to examine before accepting any one of these as final.

(v) A fifth theory is expounded by Jung mainly from the point of view of the psychological relation of the child to its mother.⁴ He finds the explanation for a terrible mother in "the psychology of the wrench from childhood" "The libido taken away from the mother, who is abandoned only reluctantly, becomes threatening as a serpent, the symbol of death". (p 20) According to Jung, the struggle of psychic weaning, which he calls 'the battle for deliverance', is the first great task of mankind and one which requires the greatest effort on the part of the growing child. "The onward urging, living libido which rules the consciousness of the son, demands separation from the mother The longing of the child for the mother is a hindrance on the path to this, taking the form of a psychologic resistance which is expressed empirically in the neurosis by all manners of fears, that is to say, the fear of life The fear springs from the mother, that is to say, from the longing to go back to the mother, which is opposed to the adaptation to reality This is the way in which the mother has become apparently the malicious pursuer Naturally, it is not the actual mother, although the actual mother, with the abnormal tenderness with which she sometimes pursues her child even into adult years, may gravely injure it through a wilful prolonging of the infantile state in the child It is rather the mother-image, which becomes the Lamia The mother-image, however, possesses its power solely and exclusively from the son's tendency not only to look and to work forwards, but also to glance backwards to the pampering sweetness of childhood, to that glorious state of irresponsibility and security with which the protecting mother-care once surrounded himApparently it is a hostile demon which robs us of energy, but in reality it is the individual unconscious, the retrogressive tendency of which begins to overcome the conscious forward striving" (pp 184-185). Although Jung thus finds the explanation in 'the battle for deliverance', he does not make it very clear whether the ambivalence is to be found only in the attitude of the child or whether it is to be found in the nature of the mother as well. According to some Jungians, the ambivalence is a product of the basic instinctual attitude to the mother and not a quality of the

4. 'Psychology of the Unconscious', Part II, Chaps VI and VII—What he calls 'The battle for deliverance from the mother' and 'The dual mother role'.

archetype. But from the words of Jung we can make a case for either, for the simple reason that the struggle is real for both the mother and the child. Depending upon individual conditions, it is possible for the mother to become an actual Lamia pursuing the child, or to appear as one in the unconscious of the child

We have so far considered five explanations of the phenomenon. With the first of these we found we could not agree, the other four contain a common basic principle, viz, that the destruction either of some existing matter or of a present state is inevitable for bringing in change, progress and new life. In this function of destruction, the mother or the mother-goddess is empirically perceived as being terrible and cruel. There is certainly a great deal of truth in this principle and especially as it is explained psychologically by Jung. We agree then that all these explanations may be partially true and have certainly contributed their share to the creating of this terrible figure. But we still have some more to consider

(vi) Another suggestion is made by Dr E O James that the 'Terrible Mother' represents the goddess in her warlike qualities which she took over from vegetation rites which were military in practice, as the principle of fertility was made to depend on the extraction of human hearts⁵. The sun being the god of warriors, the Great Mother associated with vegetation becomes a goddess of war, when calendrical rites which were solar in origin were introduced in agriculture. This explanation seems to fit in well with the Aztec ritual with which Dr James is primarily concerned in that particular context. But it seems hardly possible to advance this suggestion as a general and complete explanation of this universal phenomenon. It is doubtful whether this explanation can be offered in the case of Durga or Kali even in a far-fetched manner. This terrifying aspect of Durga does not seem to be associated with agriculture, at least not in any direct manner. It is true that Durga in her terrifying aspects represents the warrior who fought against the different demons. But she was not waging wars in the sense of undertaking campaigns for the conquest of territory. Nor were the battles fought to secure

5. 'Origins of Sacrifice', p 92 John Murray, 1933.

victims for her own sacrifices.⁶ Arjuna is asked to pray to Durga for victory in the battle of the Mahabharata, not because she is particularly a goddess of war, but because she is the supreme goddess safeguarding all the interests of her devotees. Bhandarkar says "In the M. Bh (Bhismaparvan, Chap 23), however, there is a hymn addressed to Durga by Arjuna under the advice of Krishna in which she is prayed to for granting victory in the forthcoming battle. This hymn itself shows that at the time when it was composed and inserted in the poem, Durga had already acquired such an importance that she was adored by men as a powerful goddess, able to fulfil their desires"⁷ For the warlike qualities of Durga in her demon-slaying aspect we have other more probable explanations. Further, the objection which we raised against the second theory mentioned above holds good here also. The duality must be connected with the mother and her functions and the consequent attitude of the child.

(vii) Another explanation can be found in the suggestions made by Rudolf Otto in his book 'The Idea of the Holy'. According to his suggestions, the explanation for the 'Terrible Mother' can be found in the element of awe with which man as a creature approaches the 'Numinous' or the 'Mysterium Tremendum'.⁸ It is this element of Awe that has developed into a 'Mysticism of Horror'. The Rev E. A. Payne discusses this suggestion in a very favourable light and seems, on the whole, to agree with it in regard to Durga worship. He says. "Consciousness of the numinous in Nature permeates much Sakta worship. It must be admitted that, taken as a whole, Saktism belongs to an early stage of religious development, but when it is studied along the lines which Otto's book suggests it is approached with more sympathy and

6. Bloody sacrifices are offered to Durga only when she is worshipped in the aspect of the slayer of the demons. The probable idea behind this is very crude and simple. When the goddess is praised in her fierce aspect as 'thirsting for the blood' of the demon, she is believed to assume for the moment all the qualities of that aspect. Thus it becomes necessary to appease her with sacrifices so that by her identifying herself with the killing of the victim she may find an outlet for the anger. Forces of anger once released must be given a suitable outlet.

7. Vaisnavism, Saivism and Minor Religious Systems, Strassburg, Veralg Von Karl. J. Trubner, 1913, p. 142.

8. It may be recalled that Otto analyses the attitude to the 'numinous' into elements of Awe, Overpoweringness, Energy or Urgency, the Wholly Other, and also of Fascination.

understanding than has often been the case... .”⁹ After pointing out Otto’s reference to the similar ideas in the Old Testament about the Wrath or Anger of Yahweh, Mr Payne says: “There are noteworthy descriptive similarities between the Semitic and the Indian conceptions of this Wrath of God”. He quotes as evidence a passage from the book of Isaiah.¹⁰

We may develop this suggestion in a slightly different way without altering the underlying principle. Man’s sense of sin sets him against God. And his weakness finds expression in this antagonism in the creation of a fearful deity—at least in the case of the primitive man. The sense of separation arising out of a consciousness of sin and weakness produced fear in his mind. In the conception of Durga the Terrible, we have ample evidence for this. Her essential role as Kali the Fearful is to fight evil and its representations. All the demons she fights are represented as enemies of everything that is good. The sections in Markandeya Purana which contain the glorious deeds of the goddess have ample references to her antagonism to sin and her promises to deliver mankind from the oppression of evil. Is there any basis in the child-mother relationship for the ideas behind this explanation? We have pointed out more than once that the phenomenon of motherhood must have produced a sense of awe and mystery. Apart from this, every child at some stage or other feels that it is not living up to the demands of its mother and thus develops a fear of guilt. This fear is reinforced during the time of the

9 ‘The Saktas’, Y M C A Publishing House, Calcutta, 1933 p 114

10 pp 108, 109 He quotes the passage from the translation by Moffat from what Mr Payne calls ‘a slightly emended text’ This is the passage (Is 63 1-6)

“

 All alone I trod the winepress for no man lent me aid,
 So I trod the foe in fury, trampled them down in my anger,
 ‘Twas their blood splashed by robes, till all my clothes are stained
 For I resolved upon a day of vengeance, the time to free my folk
 I had come
 I looked but there was none to help, I was amazed that there was
 none to aid,
 So my poor power gained me the victory, it was my passion
 bore me on,
 As I trampled the nations in my wrath and smashed them in my
 fury,
 Spilling their blood upon the earth.”

'wrench from the mother' The child is liable to seek an explanation for the 'receding' mother, not in her badness or unkindness but in its own badness From this, it is not a long step to the conception of the mother as a persecutor, as one who punishes The wisdom of the Hebrew people gave the following warning "The eye that mocketh at his father and despiseth to obey his mother, the ravens of the valley shall pick it out, and the young eagles shall eat it"¹¹ When a consciousness of this 'sin' deepens in the mind of the child, in the unconscious mind the mother herself becomes the cruel raven and the fiendish eagle In other words, the hatred and fear of those foul agents of punishment come to be directed in the unconscious against the mother herself And fear gets the upper hand, because of the ties of love that are already there Thus we find that the figure of the 'Terrible Mother-goddess' may be an expression, crude and imperfect as it is, of a fundamental factor in the relation of man to God, and it has its echo in the relation of the child to its mother There is then a great deal of truth in this explanation But it is very difficult to accept it as the sole cause of the *origin* of this phenomenon of the 'dual role of mother' For one thing the ideas involved are too complicated A strong sense of sin and a consequent feeling of separation does not seem to have marked the earlier stages in human development True, it must have been there from the beginning But it could not be sufficiently strong to produce this figure of the persecuting mother The phenomenon underlying this explanation did certainly contribute a great deal to this archetypal figure But one must try to find the origins in simpler ideas

While dealing with the terrible aspect of Kali some people have taken to an allegorical method trying to explain everything in terms of conflicts between human emotions and passions¹² We cannot, however, get any guidance from these suggestions for the origins of this phenomenon we are considering Bhandarkar suggests that the graver aspects of Durga, as Kali, may have been borrowed from the fierce goddesses of earlier wild tribes and also from the character of Rudra¹³ This suggestion only puts the

11 The Book of Proverbs, 30 17

12 For some examples of this see Payne op cit pp 23 ff There he gives quotations from Woodroffe's book 'Shakti and Shakta' and from Miss Underhill's 'Hindu Religious Year'.

13. Op cit. p. 144.

problem one step further. He ascribes the process of identifying one goddess with another to the 'usual mental habit of the Hindus'. While this may be true in the particular case of Durga and Kali, the phenomenon of the dual role of the Mother-goddess is found in other parts of the world as well. Hence, leaving aside these methods of explaining this phenomenon we must try to find the ultimate origins of this figure in the very nature of the mother and her functions.

(viii) We may take our guidance from a charming folk-tale of the Nigerian tribes. In many of these tribes, according to the legal code, the children belong to the mother. The following is a story to explain why this is so¹⁴. Once there was a beast with two sons. They lived in the bush near the dwelling of a poor couple who had twelve children. In their absence, the beast sent one of its sons to entice the children and eventually the beast itself came and carried away one of the children to make a meal. On their return the parents missed their little one and learned from the other children as to what happened. Next time when they had to go farming, the husband was left behind to protect the children. The beast again made its appearance. Although the father was well armed, at the sight of the horrible beast his courage failed him. He ran for his life through the back door way, leaving his helpless children at the mercy of the greedy monster, which carried away one more child. When the mother returned, her grief knew no bounds. She returned *fiercely* on the husband and demanded explanation. He told her a lie saying that he was very ill and had to go to the bush once or twice and that it was in his absence the monster had come. The children, however, all cried out and told her the truth. "Filled with fury at this, the woman made her husband be gone." "He did not need to be told twice, but went out and hid himself in the bush nearby. *The mother determined to risk her life to save her little ones. She armed herself with a very sharp matchet and waited for the beast, who came again as before and thrust in its head to seize a child. Then the woman stood forth bravely and killed her enemy,* whereon the children raised a cry of triumph." We will not stop to find out how far the portrait of the father is true. But there is a great deal of truth in the portrait of the mother. Protect-

ing the offspring is one of her functions.¹⁵ The Chinese mother goddess was represented with a sword in one hand and a child in the other. To save the child from the impending danger the mother will take any risk and put on the role of the fiercest giant. We have seen otherwise gentle hens chasing and fiercely fighting hawks and crows that come to steal their chickens. The fierceness of female wild animals while guarding their young ones is proverbial. The intensity of this mad fierceness is determined only by the intensity of their passionate love for the young ones. Although Durga or Kali is portrayed as a battle-queen, her function in that aspect is always protecting the gods and men from their enemies. In all the accounts of her fierce battles with the demons and in the hymns of praise to the glory of the goddess, this purpose of her fierceness is repeatedly emphasised. She is often adorned as the protector of the universe. She repeatedly promises to take on this fierce form and deliver mankind whenever it is oppressed by evil enemies. Her very anger is the blessing of mankind, since it destroys the enemy.

"Thy bell that fills the world with its ringing,
And destroys the glories of the Daityas (the demon army)
May thy bell guard us, O goddess,
Even us like children from sins'
Besmurfed with the blood and fat of the Asuras
As with mire, gleaming with rays,
May thy scymiter be for our welfare!"¹⁶

The anger of the Devi is directed only against the enemy and will consume only the evil one.

"O Durga! thou hast deign'd shield
Men's feeble virtue with celestial might,
Gliding from yon Jasper field;
And, on a lion borne, hast brav'd the fight:

15 It is not a function ascribed to her by an external authority. It is a part of her nature, a fundamental expression of her love. A child seeks protection from the mother more than from the father, until the age when it can understand the greater physical strength of the father. In an ordered society such a function is more than a duty of the father. While not diminishing the love of the father, I think it is true to say that external circumstances, like social customs and greater physical strength, have helped him to take on this role.

16. Markandeya Purana 91 25 ff (Italics mine in these quotations).
10

For when the demon Voice thy realms defy'd
 And armed with death each arched horn,
 Thy golden lance, O Goddess' mountain born
Touched but the pest—he roared and died"¹⁷

The goddess protects mankind not only from assaults of demons in human or animal form, but she also saves them from all other forms of evil like flood, earthquake, famine, and all sorts of epidemics. It is interesting to note in this connection that many of the South Indian goddesses, especially the fiercer ones, are goddesses of some disease like cholera and small-pox. By their functions of protecting men from these diseases, they become goddesses of diseases and naturally are not gentle and lovable in that aspect.¹⁸ The goddess Kali is also usually considered as the final destroyer of the world and her fierceness is often attributed to that role. But such a conception of the evolution and dissolution of the universe must necessarily be of a very late origin. As a destroyer of evil she can easily assume this role of the destruction of the universe as the fitting end of an evil age.

Thus, the simplest explanation seems to be found in the function of the mother as the protector of her offspring and of the species. Some of the factors which we have discussed in connection with the above mentioned theories have contributed their share and reinforced this belief in the terrible and destroying aspect of the mother and of the mother-goddess. We find therefore that this dual quality is more a characteristic of the archetypal image itself than of the attitude of the child towards it. The duality arises from the very nature of the mother love.

17 E. O. Marin 'The gods of India,' Dent, 1914, p. 179 (quoting from Sir Wm Jones' trans. of Hymn to Durga)

18 It may further be noted that Rudra, who also assumes side by side the contradictory qualities of horror and gentleness, is the vedic god of diseases.

THE EVOLUTION OF THE COAST LINE OF INDIA

By

V. KALYANASUNDARAM

The triangular peninsula of India juts out into the Indian Ocean from the south central part of Asia. The eastern and western sides are washed respectively by the bay of Bengal and the Arabian sea and the two converge to meet at the southern extremity of the peninsula—the cape Comorin.

The coasts of India are comparatively regular and smooth, there being but few creeks, inlets or promontories of any magnitude to diversify it. It is only on the Malabar and Konkan coasts that there are a few lagoons and creeks, but elsewhere, the coast is for long stretches fairly smooth with but few indentations. This has contributed to give the sub-continent a very low ratio of coast-line to area (between Karachi and Chittagong there are not more than 3,500 miles of 'direct' coast and that means only 1 mile of coast to about 450 sq miles of hinterland)¹ and very few natural harbours. The whole seaboard is bordered by a narrow submarine ledge—the continental shelf—where the sea is very shallow with soundings less than 100 fathoms. The shelf zone is generally broader along the west and the Arakan coasts than along the east coast. From these shelving plains the sea bed gradually deepens both towards the bay of Bengal and the Arabian sea to a mean depth of 2,000 fathoms in the former and 3,000 fathoms in the latter, the descent to the level of the deep sea plain being more rapid along the west than along the east coast.

The west coast of India from about the latitude of Bombay southwards is remarkably straight and with few exceptions the coastal plain fronting the sea is restricted to a very narrow zone and in some sections completely absent. In contrast to this the east coast has a low smooth outline and facing it is a coastal plain of fairly great width (with the exception of the Vizag area). There

1. Lyde: Continent of Asia—p. 359.

is an apparent straightness on the east coast also, but on the whole the east coast possesses a smooth rounded outline, a feature indicating greater maturity and which is therefore in keeping with its earlier origin as compared with the west coast.

Along the west coast and at no great distance from the shore is the crest line of the W Ghats rising abruptly from the narrow coastal plain, if present, or from the shore line itself if there be no coastal plain. The ghats present the appearance of a sea cliff to a person that approaches the Indian shore from the west—a characteristic feature of the W Coast. This sea wall like feature is quite continuous from a little north of the latitude of Bombay almost to the extreme southern tip of the peninsula with but one major gap—the Palignat gap. All along this distance the ghats rise abruptly to an elevation of rather more than 3000' in the northern half gradually increasing southwards to more than 6000' in the Nilgiris. But when looked into in greater detail there is a certain amount of difference between the northern half i.e., roughly all that lies north of the latitude of Goa and the region south of it. North of Goa the hills come very close to the shore and there is practically no coastal plain. The ghats with a flat topped summit present an abrupt and steep face to the sea. With the exception of Narbada and Tapti² there are no big rivers embouching into the sea and even these two rivers have not formed deltas which will tend to modify the coastal form.

Off the West Coast of India and at a varying distance from it there is a well defined group of barrier reefs and atolls—the Laccadives. A map of the Indian ocean shows clearly the presence of 3 well marked groups of islands off the west coast of India—the Chagos, the Maldives and the Laccadives. They seem to occur more or less in a line running N to S and therefore inclined to the general trend of the west coast which runs in a direction about 30° W of N to 30° E of S. The 3 groups seem to be arranged on a basal plateau of about 1000 fathoms and sepa-

2. Wadia. The making of India (General Presidential Address, ISC. 1942) P 17. "Two more fracture planes, parallel with the Makran coast fault, remain to be noted. These have given rise to the prominent lines of steeps in the Central Indian landscape—the Vindhya and Satpura ranges—and at the same time guided the channels of Narbada and Tapti along these tectonic lines. The latter rivers are peculiar in their being the only west flowing streams of South India, a fact which finds explanation in this accidental circumstance providing them with their valleys."

rated from one another and from the mainland by deeper water. The northernmost end of the Laccadives archipelago approaches very close to the mainland of India from which it is separated only by a narrow passage, the deepest sounding in which is 1066 fathoms. Continuing the line further northward there are two banks—the Angria and the Direction banks. The line connecting these banks and the Maldivo-Laccadive ridge, if produced northward, will coincide with the axis of the Aravalli mountains of Rajputana.

The East Coast of the Peninsula is a low gently shelving plain with a smooth course and unlike the west coast it shows a well defined change in its direction. There is a marked distinction between a northern 600 miles from about lat 16° northwards with a north-east to south-west trend parallel to the strike of the ghats and a southern 400 miles lying almost due north and south along 80° E meridian and over which the NE and SW monsoons blow obliquely, and on the one, the northerly one, there are 3 deltaic promontories—those of the Kistna, the Godavari and the combined Mahanadi-Brahmani, while on the south there is none (with the exception of the Cauvery delta). (The topography of the Indian Ocean basin has not been studied in great detail and there is consequently a dearth of information regarding the physical features of the basin. This applies more especially to the bay of Bengal than to the Arabian Sea).

The two seas that wash the sides of the Indian Peninsula are geologically speaking of comparatively recent origin having originated during the earth movements associated with the break-up of the great southern continent of Gondwana land, but of the two, the bay of Bengal appears to be the older.

Pre-Gondwana Period —The peninsula of India apparently seems to have been built up by the continued growth from and the ultimate fusion of 3 centres or masses which represent some of the oldest parts of the Indian unit. The eastern and southern parts of the peninsula are made up of archæan formations (shown in red on geological maps) one of the most ancient land surfaces of the globe. Parts of it are believed to belong to the primeval crust of our planet as it first cooled and condensed from a gaseous or liquid mass. A glance at the geological map will reveal 3 areas, apparently disconnected, of gneissic rocks comprising the peninsula, viz:—

1. the southern mass limited northward by the Deccan trap and north-eastward by the Godavari Gondwana belt,
- ii. the semi-circular gneissic mass of the Bundelkhand area and
- iii. the gneissic tracts of the north-east including parts of Bengal, Bihar and Orissa,

Each of these gneissic tracts seems to have had its own history, distinct from that of the others up to the beginning of the Gondwana period.

The greater part of the peninsula south of the Kistna is composed of gneissic and granitoid rocks traversed, especially in the western half by a number of nearly parallel bands, running NN.W to SSE and parallel to the present west coast of India, of schists, conglomerates, banded haematite beds, etc,—the Dharwars of Indian stratigraphy—beds, some of which are of sedimentary origin. With regard to the geography of this remote period, it is impossible to hazard any statement.

Subsequent to the folding and denudation of the Dharwars—the period of the eparchaeon unconformity—there are indications of seas washing the north-eastern and eastern sides of this unit and forming the Kaladgi, Godavari and Cuddapah basins of deposition. Very probably these basins may have been contiguous with one another and their present isolated distribution will then be due to subsequent denudation. In the crescent shaped Cuddapah basin, the older rocks rest quite flatly or with a gentle eastward slope on the gneiss while the higher beds overlap the lower and older beds towards the west, and this together with the fact that conglomerate beds are not uncommon here leads one to conclude that the present western boundary of the basin could not have been far from the old coast line. In the Godavari basin of Cuddapah sedimentation the same relationship holds good between the gneiss and the Cuddapah deposits. The same sea probably curved round to wash the northern side of the gneissic mass in the Kaladgi basin.³ It appears therefore that during the Cuddapah period the southern

3. Records, Geological Survey of India, Vol. XV. p. 191.

portion of the peninsula was washed by a sea whose shores very probably coincided with the present western limits of the Cuddapah and Godavari basins and the southern limit of the Kaladgi basin

II Bundelkhand mass—The Bundelkhand area of gneissic rocks—a semi-circular mass bordered on the north by alluvium (of the Indo-Gangetic depression) and elsewhere by Vindhyan sediments appears to have been on the northern shores of a sea during the Cuddapah times. The Bijawars lie nearly horizontally on the gneiss and towards the south they are covered by an extensive spread of Vindhyan sediments, but before they disappear under the Vindhyan, they begin to show signs of crushing and folding (indicating distance from the shore). The Bijawars were apparently shallow water deposits and probably never extended very much farther north than at present⁴. When they reappear from under the Vindhyan in the Son-Narbada valley region they are very strongly folded. Cuddapah sediments are found in the Aravalli region where they have been caught up in the folding movements and therefore are more affected than in other areas.

If our reading of the testimony of the Cuddapah deposits has been correct, we can picture the existence during that period of 3 land units—the southern, the northern and the north-eastern separated from one another, probably by a fairly extensive sea, which gradually got filled up by sediments brought down from the adjacent lands, these were later on subjected to earth movements which affected only very slightly the deposits near the shore while those farther away were more intensely folded.

Vindhyan Period—The deposits of the Vindhyan period are found developed in two areas of the peninsula, viz.

1. the Vindhyan of Rajputana and Central India which are continued in the south of Bundelkhand and Bihar. The lower part of the Vindhyan system consists of marine deposits including limestones while the upper part consists of deposits of arid and semiarid climates, represented by red sandstones and shales with intercalated bands of gypsum.

- ii the Cuddapah basin of the Madras Presidency, where the Karnul system, considered as the equivalent of the upper Vindhyan is developed.

⁴ P. Lake. The growth of the Indian Peninsula—Geological Magazine, New Series, Decade III, Vol. X p. 313.

The Vindhyan sediments of Central India indicate a sea extending from the Vindhyan mountains in the west to Bihar in the east. The marked overlapping of sediments to the north suggests the nearness of the shore, and the Indo-Gangetic alluvial region was then, most probably, a land area on the northern shores of the South Vindhyan sea⁵. The same sea may during the upper Vindhyan period, very probably have extended southwards as far as the Cuddapah area to receive the deposits of upper Vindhyan facies, which have been carved into two isolated tracts, the Kurnul series of the Cuddapah basin and the Bhima series of Hyderabad State, by later sub-aerial denudation. Outliers of the Vindhyans are found in the Godavari valley also but the cover of the trap has hidden whatever evidence there may have been of the connection or otherwise of these southern representatives of the Vindhyans and those of the type area.

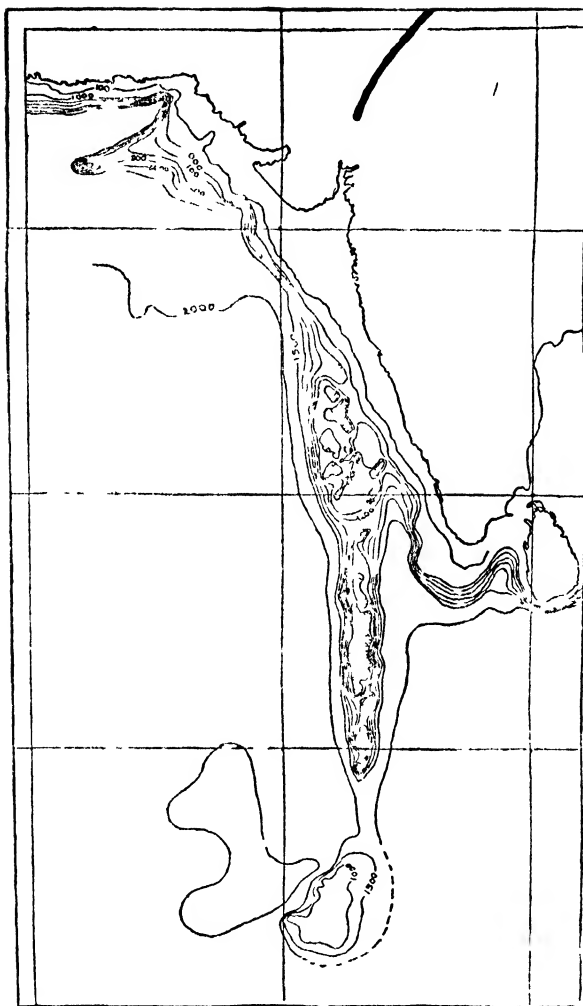
Rocks showing a strong lithological similarity to the Vindhyans have been noticed in the Salt range of the Punjab and the more distantly placed Hormuz series of Iran. While the lithological characters indicate a similarity of physical conditions of deposition, it is impossible to prove the contemporaneity of these isolated occurrences. While Fox is for correlating the Vindhyans of central India with similar lithological types at the base of the Salt range Cambrian and Hormuz series of Iran^{5a} it is difficult for us to reconcile the marked disparity between the two formations with regard to their fossil contents and consider them as contemporaneous. It appears more reasonable therefore, to accept the view put forward by M. R. Sahni that "a correlation between Cambrian and Vindhyan strata seems unjustifiable though one may concede that the physical conditions remained unchanged from the Vindhyan to the Cambrian times"^{5b}.

No rocks of a later age than the Vindhyans but older than the Gondwanas have been known to occur in the gneissic tracts under consideration. Prior to Gondwana period therefore the three gneissic tracts which have been considered as the nuclei out of which the present peninsula has been built, appear to have had nearly the same history. Sediments were deposited along their

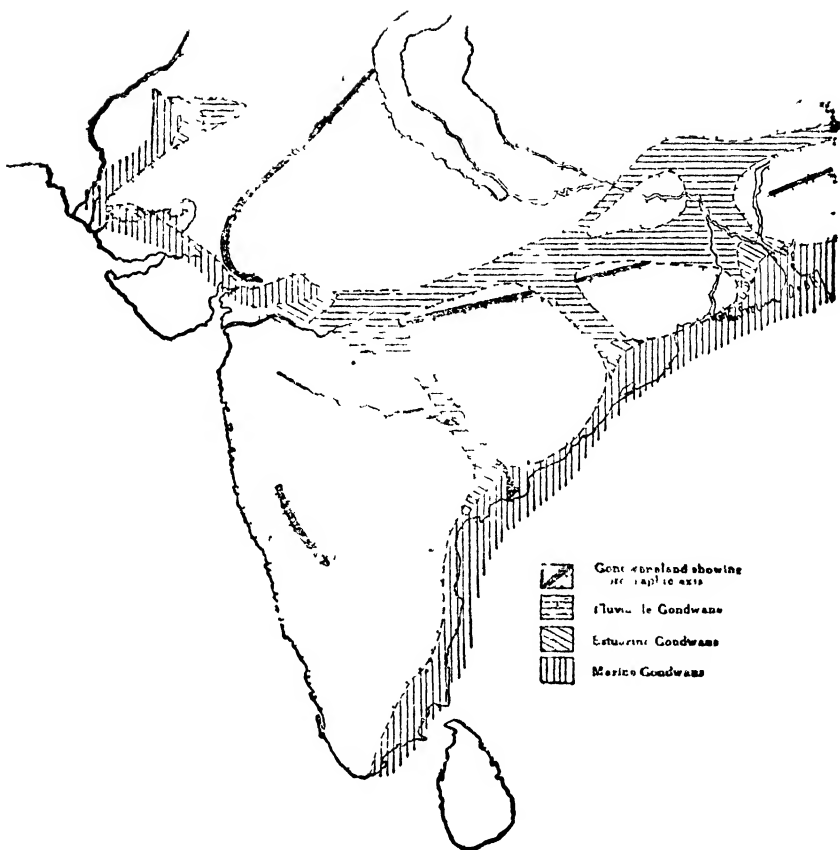
5 M. R. Sahni Palaeogeographic revolutions in the Indo-Burmese region and neighbouring lands—Proc 28th Ind Sci Congress Part II p 126.

5-a C. S. Fox, Progress report, 1925

5-b M. R. Sahni Ibid p 128.



Submarine Contour of a part of
the Arabian Sea



Map of India showing Geography Gondwana Period after C S Fox

borders during the Cuddapah period which were then crushed up against the unyielding gneiss. After a period of denudation another and perhaps a larger sea came on the scene covering the Cuddapah basin, the Godavari valley and the Bhima valley in the Deccan and the Son-Narbada tract in Central India and which curved round the western border of the Bundelkhand tract to cover what is now the Aravalli—Rajaputana region.

With the close of the Vindhyan period the sea probably receded further west and north-west and at any rate they don't seem to have played an important part in the subsequent history of the peninsula which may therefore be considered to have remained as a fairly stable land mass (subject to local exceptions)

Gondwana Period:—The present coasts of India were determined at a comparatively late stage in the geological history of the peninsula—the late mesozoic and early tertiary times. Prior to this period the peninsula formed part of a great southern continent or a series of land masses—the Gondwana land, which had been called into existence by about the end of Devonian times—which were connected closely enough to permit the free distribution of terrestrial fauna and flora. This southern continent included the peninsular India, Malay peninsula, Australia, South America, South Africa, Madagascar and Antartica, which were probably very close together during the time. The Gondwana continent seems to have persisted through the greater part of the mesozoic period and was broken up at the end of the cretaceous. Geologists and biologists are now agreed that such a continent did exist, but with regard to the mechanism of its break up into several disconnected patches as we see them today there is difference of opinion. Some believe in the displacement of large blocks of the continent—the connecting links—along vertical or nearly vertical planes giving rise to the oceanic basins of the Arabian sea and the bay of Bengal (the submerged land link between India and Madagascar being referred to as Lemuria), while others, probably the more numerous in recent years, following Dr. A. Wegner⁶ whose theory of continental drift has been brilliantly and convincingly enunciated by Dr. A. L. Du Toit,⁷ acquiesce in the development of fractures and the subsequent

6. A. Wegner. The origin of Continents and Oceans

7. A. L. Du Toit. Our Wandering Continents and also C. S. Fox. The Gondwana system and related formations—Mem. Geol. Sur. India Vol. 58.

drifting apart of the units roughly in an easterly direction. Whatever view be taken it is quite clear that the break up of the Gondwanaland and the determination of the coasts of the peninsula was during a recent geological period in the history of the earth.

The recent origin of the west coast of India is indicated by a variety of features, Viz.—

1. The parallelism of the western ghats to the sea is suggestive of a connection between the two. The parallelism of the ghats and its steepness for long distances are cited as furnishing evidence of a rise of land. The trap country of the western ghats runs from Goa northwards in an unbroken wall of 2000' to 4000' cut back in places by streams, projecting here and there into long promontories, but preserving everywhere a singular resemblance to sea-cliffs—a resemblance which ceases to a large extent southwards where metamorphics replace the horizontally bedded traps.

11. *The abrupt termination of the traps along the west coast.* The traps at present cover an area of about 200,000 sq miles and extend from Bombay to Amarkantak and from Belgaum to Goom. They are thickest along the west coast—along the Bombay coast they have a thickness of about 6000'—and rapidly thin out towards the east. Isolated outcrops of the traps occur in Kathiawar, Sind and other places, their present distribution and the way they thin out indicate a much greater extension of the trap area to the west in the past than at present. It is very likely that the traps reached the surface some where near Bombay,⁸ as they are thickest round about this region and spread out laterally. The gradual increase in thickness of the traps towards the west coast where it reaches its maximum thickness suggests that it once extended far out into the Arabian sea. Its disappearance is unlikely to have been due to marine denudation⁹ as suggested by Stanley Gardiner but must be due to faulting. Direct evidence on this point is provided by recent deep borings in Kathiawar and Guzerat, which indicate that the traps have been faulted down to at least 2000' below sea level. Similarly Fermor as a result of his examination of the rocks penetrated by a deep boring for coal at Bhusaval, Bombay presidency, noticed a disparity between the level of the base of

⁸ Records, Geological Survey of India, Volume 5, p 91, 13 p 69, 58 p 90

⁹ Stanley Gardiner The Indian Ocean—Geographical Journal, Vol. 28. pp. 313-332.

the traps at Nagpur and that at Bhusaval and remarked, that "this proves that the traps (assumed to be of subaerial origin) at Bhusaval have been faulted at least 515' if the bottom flow erupted at sea level, or at least 1515' if erupted at the level of the base of the traps in the neighbourhood of Nagpur"¹⁰ and again when he says that the projected second boring at Kalyan was abandoned "in view of the results referred to in the previous paragraph and of the possibility of still greater downthrows to the west as one approaches the great fault or systems of faults forming the west coast of India"¹¹ One particular character of the traps is in keeping with this view. The traps which are usually horizontal except where they thin out, display a marked departure from their horizontality and have gentle dips of 5° and more towards the sea in several places along their present western edge, e.g. Bombay, W Satpura, Khandesh and Rajpipla hills near Broach. These westerly dips may be taken to be the result of this faulting. Since the faulting has affected the trappean rocks also the initiation of the west coast consequent on this faulting cannot have been earlier than the eruption of the traps-Eocene?¹²

iii. Blanford has drawn attention to the faulted nature of the Makran coast of Baluchistan¹³. In support of his argument he refers to the existence of a submarine cliff parallel to and at some distance—10 to 20 miles—from the shore. The Kirthar mountains of Sind terminate at the promontory of cape Monze, but the island of Churna off cape Monze may be shown to be a continuation of the Kirthar mountains. Continuing this range of mountains there is a well marked submarine ridge that rises from a depth of 1700 to 1800 fathoms on either side to a depth of only 1226 fathoms in the middle of the ridge while at the extreme western end, it is

10 L. L. Fermor. Records, Geological Survey of India, Vol 58 pt 2 p 220

11 Ibid p 221

12 The age of the Deccan traps has been determined with reference to the infra-trappeans of Rajahmundry and the inter-trappeans of Rajahmundry, Lameta ghats (near Jubbulpore), Nagpur and Chhindwara, Bombay, Cutch and Sind and the overlying fossiliferous beds of Sind. The evidence available so far seems to suggest that the trap commenced to be poured out in the upper most cretaceous and that they continued through the gap of time marked in Europe by an unconformity between the mesozoic and the tertiary. Reference may be made to

i. Dr Birbhal Sahnî. The Deccan traps an episode of the tertiary era-Pro 27th Ind Sci Con Pt II, 1940

ii. Dr Birbhal Sahnî-Proc Ind Sci Con Pt IV 1940

13. Blanford. Rec Geol Sur. India, Vol 5 pp 41-45

covered by only 950 fathoms of water. This submerged ridge may be a direct continuation of the Kirthar mountains of Sind, but which has been faulted down during the formation of the Makran coast

The same authority puts the west coast of India during the miocene times much further west than at present¹⁴ Dr Fox¹⁵ too is of the same opinion when he says that the presence of a fault out at sea and parallel to the west coast has long been suspected J D H Wisemann and R B Seymour Sewell have on the results of the John Murray expedition come to the conclusion "that the northern part of the Indian ocean assumed its present form as a result of compression in tertiary times contemporaneous with Alpine-Himalayan folding, and that subsequently in Pliocene and post Pliocene times a tract of land occupying this area faulted down to its present depth"¹⁶ Corroborating these views we find that the hot springs which occur at intervals along the coastal strip of the Konkan from a little south of Ratnagiri to north of Bombay are arranged on a remarkably straight line indicative of an association with a line of fracture¹⁷ LaTouche cites the submergence of the eastern part of the Bombay island and remarks that it is not the only instance of a change in the relative level of land and sea "in a region which is perhaps more than usually susceptible to such movements," as the west coast of the peninsula lies on the edge of a great depression by which land connecting India with Africa has been 'submerged' beneath the waters of the Arabian sea within comparatively recent times^{17a}

14 Blanford and Medlicott Manual of Geology of India, Vol I p 11 and Records, Geo Sur India, Vol V pp 82-102

15 C S Fox Rec Geol Sur India, Vol 54 p 126

16 J D H Wisemann and R B Seymour Sewell Geological Magazine, Vol 74, p 226

17 T Oldhams The thermal springs of India—Mem Geol Sur Ind Vol 19 pp 99-161

17-a The submerged forest is found along the eastern coast of the island while there are indications of a recent upheaval along the west coast of the island This discovery of the existence of a number of trees submerged to a depth of some 20' below sea-level but in many cases still retaining their upright position and with their roots attached to the soil in which they grew furnishes evidence of the submergence of the land surface in the immediate neighbourhood of ground which appears to have been recently elevated—indicated by the occurrence of raised beaches composed of shells and gravels, partly consolidated into a littoral concrete, is found at many places along the west coast of the island extending to a height of 12' above high water level. La Touche Rec. Geol Sur. India, Vol. 49, p 214.

iv Col Sewell¹⁸ has referred to the possible connection between the Aravalli mountains and the Maldive-Laccadive ridge with its extension in the Angria and the Direction banks Both Pascoe and Sewell¹⁹ have expressed the view that the Aravallis were far more extensive than today and that they formed a major physical feature, probably the central water shed of the Gondwanaland "As a result of earth movements, a large block of the Gondwanaland west of what is now the Bombay coast faulted down beneath the sea"²⁰ The formation of the west coast by the break up of the Gondwanaland was probably accompanied by faulting in other directions as well, and one of these seems to have coincided with the southern boundary of the peninsula of Kathiawar and to have initiated the Narbada valley, the middle section of which has a remarkably straight course Another such structural disturbance seems to have been responsible for the separation of the continental island of Ceylon from the main land,²¹ while a number of other disturbances in similar and inclined directions but of smaller magnitude have resulted in the present distribution of relief in the peninsula From the nature of the case it is impossible to produce any direct evidence of the geological continuity of the Aravallis and Maldive-Laccadive ridge, for one reason that during the outflow of the Deccan trap lava flow the denuded remains of such a southerly continuation of the older mountain chain must have been buried beneath a layer of lava, and secondly the extensive cover of continental and coralline debris completely shields it But there are certain resemblances between the two which are, to say the least, suggestive and appear to be in favour of such a view

v True mountain ranges are few and the Aravallis are almost the only mountain ranges in peninsular India Dr A M Heron²² has shown that the Aravalli mountain has been produced by extensive upthrust with faulting on the eastern and south-

18 Memoirs of the Royal Asiatic Society of Bengal, Vol 9, p 427

19 Ibid, p 432

20 Ibid p 427

There is evidence of a considerable amount of faulting all along the west coast of the peninsula and thus it is possible that the continental shelf may be a submerged portion of the peninsula

21 Lithological and biological evidences point to a long continued connection between the two

22. A M Heron The Gwalior and Vindhyan systems in south eastern Rajputana—Mem Geol Sur India, Vol 45, pt 2.

eastern sides and owing to the manner in which the folds have been thrust over towards the south and the east, the slopes on these two sides are much steeper than on the north and the west. If then the whole extent of the mountain range including the Aravallis to the north and the Maldive-Laccadive ridge to the south were parts of the same mountain system one would expect to find the same or similar conditions throughout the chain. A study of the submarine contours of the two sides of Maldive-Laccadive ridge shows that as a rule the eastern side slopes down much more rapidly than the western side. The eastern side rises abruptly from the sea bottom to the top of the basal plateau which gradually slopes westwards.

vi Lieut-Col E A Glennie²³ of the Geodetic Survey of India who conducted gravity observations during the John Murray expedition to the Indian Ocean has come to the conclusion that throughout the Laccadive archipelago there is a positive anomaly which he connects with a similar positive variation extending along the Aravalli mountain. He suggests that the line of upwarps which has formed the Aravallis—the oldest range in India—is continued southwards into the Arabian sea and forms the base on which the coral islands of the Laccadives are situated—a conclusion corroborating that of Sewell. In the Maldives area the gravity anomaly was found to be negative, and Glennie interprets this as “a result of a downwarp present over the southern end of the Indian peninsula”. If this assumption be correct, it appears reasonable to conclude that there has been faulting between the Laccadives and the Maldives along the line of the eight degree channel.

vii Oldham has mentioned the occurrence of a certain freshwater mollusca—*Cremnoconchus*,²⁴ unknown elsewhere but so closely related to the littoral *Littorina* as to render possible the assumption that both are descended from a common ancestor but which have evolved along different lines due to changes in the environment brought about by subsequent rise in level of the upthrow side.

viii Separating the ghats from the coast is an undulating piece of country, a sort of a terrace, usually rising abruptly from

²³ Geological Magazine, Vol 74 p 227 (J D H Wisemann and R B. Seymour Sewell The floor of the Arabian Sea)

²⁴ Oldham Manual of Geology of India, p 11.

the level of the coastal plain to a height of 150' or 200' at its seaward edge and gradually increasing to about 500' near the foot of the ghats. Their gently sloping nature and their gradual seaward slope is a clear proof that here we have an instance of an old marine terrace—a plain of marine denudation.

ix. The peculiarity of the main drainage of the peninsula has also been explained as due to faulting.²⁵ All the major rivers of the peninsula with the exception of the Nerbada and the Tapi rise very near the crest line of the ghats almost within sight of the west coast, but instead of taking a shorter course to the Arabian sea drain all the way down to the bay of Bengal. The easterly drainage of the peninsula must be an old one as they flow through flat valleys with very low gradients and indicate base levelling at least once before. The assumption of the former greater extension of the Aravallis to include the Maldive-Laccadive ridge to form the central water-shed of the mesozoic Gondwanaland offers an explanation to the present drainage of the peninsula. The break up of the Gondwanaland consequent on faulting and displacement or drifting removed the westerly drainage from the central water parting of the Gondwanaland, leaving the drainage of the eastern half alone on the field with the rivers rejuvenated to a certain extent (due to rise in level of the head waters following the break). This rejuvenation is specially prominent in the case of the streams draining into the Arabian sea.

Age of the West Coast —It will by now have been made clear that the west coast of India had come into existence at a late stage in the geological history of the peninsula, it having been initiated by the earth movements which caused the break up of the Gondwanaland. The testimony of the traps indicates an eocene or post-eocene age to the coast.²⁶ But it is rather difficult to date the origin of the west coast precisely except as a range in time during which this must have taken place. The occurrence of

25 Mem Roy As Soc of Bengal, Vol 9, p 1

26 Recent work by V S Dubey and R N Sukheswala on the Radio-active characters of the trap suggests a time range from upper cretaceous to perhaps as late as oligocene but there is still a certain amount of uncertainty attached to the deduction from radio-active data. Taking all the evidences into consideration it may not be far wrong to say that the trappean eruption was more eocene than oligocene. and hence the faulting along the west may have started in the late eocene or post-eocene times.

fossiliferous marine strata in the extreme south of the west coast serves to indicate the time before which the faulting must have taken place. The Quilon and Warkala beds—a series of current bedded sandstones and variegated clays with thin seams of lignite and capped by laterite—occur in the form of a coastal fringe from Quilon to Warkala. A broadly similar type of formation has been noticed in well sections in Padappakara near Quilon. The limestone beds contain corals and mollusca and the fauna indicates an essentially upper miocene to pontian (lowest pliocene) age. Further north on the Ratnagiri coast beds of Gaj age (lower miocene) overlain by laterite, are exposed. In as much as beds of lower miocene age have been found near Ratnagiri and of upper miocene age in the Quilon area, the coast must have been initiated not later than the miocene but not before the upper cretaceous, as the traps of upper cretaceous to eocene age have been affected by the faulting.

The evidences available, therefore, suggest that till about the miocene there is no evidence of our western coast, either India had not yet split away from Africa or what seems more likely it had brought away with it a large tract of land which lay to the west of it. By the sinking of this tract in post-eocene but pre-miocene times, “the gulf between India and Africa had widened out into the Arabian sea isolating our triangular ‘island of the Deccan’ or the peninsular mass”²⁷—island because the position of the Himalaya-Baluchistan and the Himalaya-Burma arc was still occupied by the tethys and the Himalayas was being nurtured in its womb—“which like a gigantic raft had been cut adrift and will continue on its long journey to the north-east”²⁸

From Kathiawar northwards conditions seem to have been different. This part of India which was practically devoid of marine sediments since the Vindhyan times, witnessed marine transgressions during the upper jurassic, upper cretaceous and miocene times. A shallow sea appears to have extended northwards from Cutch as far as salt range of Punjab—a conclusion based on the jurassic stratigraphy of Salt range and Cutch—and this sea seems also to have spread over a large part of Rajputana in Bikaner and Jaisalmer.

27 B Sahn. Pro Ind. Sci. Con 1940 pt II, p. 6.

28. Ibid.

Marine jurassic rocks are found in (i) Cutch (ranging from inferior oolite to neocomian or upper cretaceous); (ii) Dharangdhara in Kathiawar—probably a part of the same basin as that which covers Cutch, (iii) in S W Rajputana where they are exposed in Bikaner and Jaisalmer but their full extent is concealed by desert sand, (iv) Salt range of Punjab—though folded, compressed and disturbed, these show greater affinity to those of Cutch than to the geosynclinal facies developed in Himalayas and Baluchistan.

The character of these jurassic deposits indicate shallow water conditions and nearness to the shore. During the next period—the cretaceous—the sea very probably retreated from Rajputana (we can not be sure of this) and probably also from the Salt range but over Cutch it had persisted from jurassic right down to middle miocene times, as there is a fairly conformable sequence from jurassic through cretaceous to the middle miocene times with but temporary and small breaks in sedimentation, and during the upper cretaceous (cenomanian) the sea seems to have transgressed into what are now Surat, Broach and portions of the Narbada valley. The deposits laid down during the cenomanian transgression are well developed in a tract of country extending from Wadhwan in Kathiawar to Bagh in Gwalior state. This is the first time that this area appears to have been under the sea as the marine Bagh beds rest directly on the eroded surface of the archaeans. This arm of the sea appears to have become deeper with the passage of time²⁹. The age of these Bagh beds had been placed at turonian, perhaps extending up to cenomanian and senonian. Vredenburg, after an examination of both the marine Bagh beds and the estuarine or fluvatile Lameta beds came to the conclusion that the two were contemporaneous and that the former represented the marine facies of the Lametas. It is more than probable that in this region there embouched into this Jurassic sea a westward flowing river draining the eastern gneissic country.

The close resemblance between the fauna of the Bagh beds and those of the cretaceous of Arabia and southern Europe

29 The Bagh beds consist of a lower division consisting of a basal conglomerate with sandstones and shales and an upper division consisting of coralline limestone, marly limestone and nodular limestone and this succession definitely indicates that by the end of the Bagh period of deposition the sea had enlarged sufficiently to cover large areas as to place this spot away from the coast or found itself not much affected by sediments

suggests a continuous channel for the distribution and intermingling of the marine fauna. As the cretaceous of southern Europe were deposited in the same geosyncline that covered the Himalayan region, this faunal affinity might be taken to indicate that during the cenomanian (upper cretaceous) marine transgression, there was an arm of the Himalayan sea invading the Narbada valley. Another interesting point which forges home the relationship between the cretaceous seas of the Narbada tract and the tethys is that the cenomanian marine transgression covers about the same time interval when there was a more or less pronounced stratigraphical gap between the lower and upper cretaceous in the geosynclinal area (absence of cenomanian deposits in the Hazara and Baluchistan areas). This would therefore mean that the cenomanian marine transgression in the Narbada Valley probably compensated the marine regression on the borders of the geosynclinal area of the extra peninsula³⁰. It is also rather interesting to note that at about roughly the same period there was a marine transgression along the east coast of the peninsula which latter had been determined earlier than the west coast, but there seems to have been not much of a connection between the two seas, for while the fauna of the Narbada cretaceous was tethyan in character that of the east coast was that of the Indo-Pacific province.

The cretaceous sea gradually retreated and during the eocene it covered the coastal region of Surat and Broach where inliers of middle and upper eocene beds are found amidst the later alluvium, resting either directly on the traps or overlapping on to the jurassic and overlaid fairly conformably by strata of miocene age, indicating thereby that the sea continued to exist over the area till lower miocene times, and after the lower miocene period the sea gradually shallowed to receive deposits of a littoral or estuarine facies. The marine facies of deposition—of a coastal type—seems to have prevailed over Cutch, Kathiawar and Rajputana during the eocene and in the former it persisted until as late as middle miocene or even later.

The East Coast.—Subsequent to the deposition of the Purana group, the bulk of the peninsula remained as a stable piece of land mass until about the middle of the jurassic period and during a major part of this long interval it formed part of the Gondwana-

land. The first indication^{30a} of a break up of this ancient land mass appears along the present east coast where in a belt of country extending from Cuttack to as far south as Ceylon are found a number of isolated outcrops of upper Gondwana formations with intercalated marine fossiliferous strata³¹ The plant remains of the upper Gondwana formations have been assigned to middle and upper jurassic (Rajmahal and Kota stage) while the associated marine fauna, ill preserved in most cases, has been assigned to neocomian by Dr Spath This association of marine strata containing identifiable fossils is the first indication of a sea in this neighbourhood It appears reasonable therefore to expect that the dismemberment of the Gondwanaland and the subsequent separation of Australia had been initiated by about the beginning of the jurassic period when either through fracture and rifting or block faulting and subsidence the land link between India and Australia was removed and a bay was developed The eastern sea, the precursor of the bay of Bengal invaded the low lying parts of the newly formed coast, leading to the formation of characteristically shallow water deposits and thus helping to date the separation of the Australian mass from the Indian mass

Such invasions by the sea, known as marine transgressions,^{31a} are of short duration and affect only the lowlying regions near the coast, converting them for the time being into epicontinental seas (to be distinguished from geosynclinal tracts), the deposits due to

30-a "To the east and south-east of the eastern ghats there was presumably land But what gap there was between these and Australasia is not known It may however be conceded that in Damuda times (lower Gondwana) there was an arm of the sea somewhere in the region of northern bay of Bengal into which the rivers of the Damodar basin found an outlet" M S Krishnan Geology of India, p 269

31 The Jurassic marine strata of the east coast is found developed as isolated outcrops in various parts from Cuttack to Ramnad and then to Ceylon and goes under different names at Cuttack-Atgarh beds and at Rajahmundry—Golapilli sandstones, Raghavapuram Shales and Tirupati sandstones and etc

31-a Such temporary invasions by the sea of low lying regions near the coast are not uncommon in geological history, and are caused by a sudden decrease in the capacity of the oceanic basins by some deformation of the crust such as the sinking of a large land mass or elevation of a submarine tract. The earlier severance of the land link between India and Australia originated the bay of Bengal and incidentally led to an invasion of the lowlying parts of the now separated India.

marine transgressions consist of sands, clays and limestones of a littoral type and are usually of moderate thickness as compared with that of regular marine deposits and they cover as a rule only a narrow strip of land bordering the coasts, usually displaying such characters as irregularity in dip, current bedding and a gentle dip seawards. These detached outcrops of marine jurassic formations of the east coast probably represent the undenuded remnants of an originally extensive formation, developed perhaps in an unbroken stretch along the continental edge and probably also, the slope of the newly formed east coast of the peninsula. The nearness of the coast line is indicated not alone by the frequency of cross bedding and the general seaward slope, but by the occurrence of conglomerates, as for example, in the Alikuli-Satyavedu region where they are coarsest. Besides, the occurrence of caves at the head of a valley in the Alikuli hills have been referred to as sea cliffs though Dowie has sought to explain it as due to sub-aerial weathering of the conglomerates. The marine transgression during the jurassic, it is interesting to note, started at a period when there are indications of a temporary regression in the geosynclinal area of Spiti and Hazara³²

Cretaceous —There was again another marine transgression during the upper cretaceous (cenomanian) times, which affected the south-east coast of the peninsula. The same sea which during the cenomanian times transgressed into what are now parts of Trichinopoly and South Arcot districts and left fossiliferous marine deposits, stretched northwards into what is now the province of Assam, for similar types of fossil shells have been found in the two regions. This period of cretaceous marine transgression seems to have coincided with the similar incident in the Narbada valley. But the faunal assemblage of the latter region is so different from that of the south-east coast that the sea which transgressed into Narbada valley tract must have been different from the one that flooded the east coast and Assam, for while there is some evidence showing affinities of the Bagh beds of the Narbada valley to the

32 In the geosynclinal region of the Himalayas there is a marked interruption—indicated by an unconformity—of sedimentation, commencing from callovian and lasting till oxfordian in Spiti and the N Himalayas, while in Baluchistan it lasts until the neocomian period. In the coastal facies the lower jurassic is absent and the deposition begins later assuming a marine character in the callovian and continuing beyond the jurassic times.

cretaceous of South India, the fauna of the former has a closer resemblance to those of Arabia and southern Europe in general and the latter has an affinity to those that occur in Assam, the Arakan Yoma belt and the Natal province of south Africa. There therefore must have existed two seas, a northern one, the tethys, extending from southern Europe through middle east into the Himalayan region and further north-east and which during the cenomanian times transgressed into parts of Rajputana, Narbada valley Kathiawar and Cutch, and a southern sea—the Indo-Pacific ocean, which washed the south-eastern shores of the Indo-African continent and which transgressed into parts of Assam and Trichinopoly district. Probably there was a limited amount of intermingling between the two by way of the Narbada valley, but on the whole the Indo-African continent which had not yet separated, acted as a fairly effective barrier between the mediterranean and the Indo-Pacific zoogeographic provinces.

Associated with the cretaceous of Pondicherry there are rocks which have recently yielded eocene foraminifera but the extent of these rocks is not known. Overlying these are out-crops of Cuddalore sandstones which extend from near Pondicherry as far south as Madura. Similar yellow and brown coloured sandstones are found overlying the deccan traps near Rajahmundry (the Rajahmundry sandstones)—and again near Banpada (the capital of Mayurbhanj state), Cuttack, Midnapur, Kalipur and Khansol east of Ranganj (Durgapur beds). These are referred to the miocene period of the tertiary system. Referrable to the same group are the miocene limestones of Jaffna. The evidence of the eocene and miocene formations point to slight and local incursions of the sea on the east coast and the shore line during the successive invasions seems to have been further east than the immediately preceding one. The Jaffna limestone, the earliest marine formation in the island of Ceylon throws some light on the separation of this continental island from the mainland. For sometime after the break up of the Gondwanaland Ceylon may have been attached to the mainland, but sometime before the miocene period it must have been severed from it, the severance was very probably the result of a fracture, a sympathetic shock of the main diastrophic movement that caused the break up of the Gondwanaland. Thereafter, towards the close of the miocene, the Jaffna limestone and shales laid down in the gulf that separated Ceylon from India were elevated thus establishing a land link

between the two,³³ a link that enabled the migration of Indian fauna into Ceylon, especially during the glacial epoch; but this again broke, probably not so much by a structural disturbance as by erosion (due to the monsoon that was established) and thus served to cut the connection between the two.

In the north the sea seems to have occupied parts of Assam, at any rate the part south of the Shillong plateau, and these marine conditions continued until about the second phase in the elevation of the Himalayas during the middle miocene times. The tertiary period is characterised by a fairly well defined and gradual recession in the north, north-east and north-west, following the elevation of the sediments to form the Himalayas and the associated ranges.

From about the middle or upper carboniferous till early tertiary times, with but a few temporary recessions, the site of the Himalayas and the hill ranges of the north-west and north-east was occupied by the tethys—a primitive mediterranean ocean that extended from the Carribean to the East Indies, and in this were deposited a vast pile of sediments of the order of several tens of thousands of feet thick—an accumulation which was made possible by the sinking of the floor of the basin *pari passu* with deposition. The sediments were upheaved to form the present Himalayas and the associated ranges by a series of four great movements separated by intervals of quiescence, and this resulted in the obliteration of the tethys.³⁴

Conclusion.—The study of the evolutionary development, with the help of the stratigraphy of the peninsular and extra-peninsular units, of the coastline of India, makes it clear that the peninsula had

33 Deraniyagala Some post-Gondwana land-links—Proc 27th Ind Sci Con Pt III p 119-120

34 The first of these upheavels took place during late eocene which cut up the tethys into a series of shallow marine lagoons, the second and the most powerful upheaval as a result of which the Himalayas appear to have acquired its major features took place during the miocene, the remnants of the shrunken tethys were converted into a long narrow continuous shallow trough between the peninsular mass and the newly born Himalayas; the third was during the late pliocene and the final phase, a mild one, was during the later pleistocene.

had the major features of its coast line determined at a fairly late stage in its geological history. Of the two coasts the eastern seems to be definitely the older. Both have a structural basis, the west coast fault being parallel to the trend of the Dharwar schist band—W.N.W to E.S.E. while the east coast has a broad structural affinity to the Eastern ghats strike. Owing to the nature of its formation, the unit has unfortunately not been endowed with any high coastline index. Subsequent to their formation they have undergone a good amount local changes either of elevation or of subsidence as a result of which the peninsular coast line developed its present characters. Considerations of space and time do not permit a more detailed treatment of this but it is hoped to write about these features in a subsequent paper.

REVIEWS

INDIA AND CHINA—A thousand years of Sino-Indian contact by Dr P C Bagchi, M A, Dr es-lettres (Paris). China Press Ltd., Calcutta, 1944, Price Rs 5|-.

This neat little volume of a little over a couple of hundred pages is a competent and timely aid to the mutual understanding of the two great nations of the East that should play an increasing part in shaping the future of the world if it is ever to shed the fury of rival imperialisms. Dr Bagchi's work as a Sanskritist and Sinologist has earned for him a high place in Indian scholarship, and there is none better fitted for the task of interpreting China and India to each other in the light of their past historic connections. The author says that he has tried to make the book 'as free from academic discussions' as possible, and the reader will find here the results of many years of patient study and hard thinking presented in an easy and simple style, that has much in common with the expositions of the great French Indologists under whom Dr Bagchi had his training. The scope of the book will be seen from the headings of the chapters (1) Routes to China and the first contact, (2) The Buddhist missionaries of India to China; (3) Ancient Chinese pilgrims to India, (4) Buddhism in China; (5) Buddhist literature in China; (6) Indian art and Sciences in China, (7) China and India. There is an appendix on Indian scholars who worked in China containing well over a hundred entries arranged alphabetically with useful biographical notes on each. A good map, a short bibliography and a Chinese index of ten pages are other features. Altogether a very useful and authoritative manual that one should like to see in the hands of every student of India's history and culture.

K. A. N.

RAJPUT STUDIES: By A C Banerjee (Published by A. Mukerjee & Bros., Calcuta, Rs 7/-, 1944)

The history of the Rajputs forms an important chapter of Indian History, and yet the attention that it deserves has not been bestowed on it by scholars writing in English. The book under review is a collection of papers published by A. C. Banerjee in different journals together with some new chapters on some aspects of Rajput History.

Todd is almost the only source from which the author has freely drawn in producing these papers. The chapters dealing with the relations between the East India Company and the Rajput States are however based on unpublished documents of the Imperial Record Department. In discussing the early history of the Guhilots, the author supports the theory of Bhandarkar that the Guhilots were originally Nagar Brahmans and of foreign origin. There is another theory that the Nagar Brahmans were Matrakas and therefore the Mewar and Valabhi dynasties belonged to the same foreign tribe. It is time that we revised our opinion of the origin of Rajputs and ceased to stick to old, worn-out theories. We are sorry to note that the author has not gone into this question and further that he accepts statements like the following "The Mewar and Valabhi dynasties were somehow connected". Among the studies, that on Rajput polity is thin. Neither the nature and character of the Central Government nor the relations between the Prince and the chiefs are clearly defined. The second half of the volume is devoted to British alliance with Mewar, Japur, Marwar and some other minor states. It is shown that the Rajput-Maratha relations in the 18th century were so strained that the Rajputs were by necessity driven to seek British alliance. The book furnishes a connected account of the slow expansion of British supremacy over Rajputana, and to this extent it is useful. There is no index.

V R R DIKSHITAR

ANNEXATION OF BURMA. By A C Banerjee (Published by A Mukherjee & Bros, Calcutta, Price Rs 7/-, 1944)

Banerjee has taken up in this book a rather neglected field of Indian History. The importance of the North-East frontier of India cannot be minimised. This book deals with the events that led to the Burmese Wars and finally resulted in the incorporation of Assam and Burma as part of the British Empire. The history of Anglo-Burmese relations practically commences with the conquest of Arakan in 1784-85 by King Bodawpaya. Some people of Arakan went to the neighbouring district of Chittagong and settled there. This was resented by the Burmese who made several attempts to violate British territory from 1786-1824. The troubles at this frontier reached their climax in 1823 when the Burmese troops occupied Shahpuri on the British side of the channel of the Naf. These and other causes led to a declaration of war in 1824. By the peace of Yandabo (1826) the King of Burma renounced his

claims to Assam, and ceded Arakan and Tennasserim to the Company. The violation of certain articles of the treaty of Yandabo and a number of complaints from English residents of Rangoon and other British merchants led to the second Burmese War and finally to the annexation of Pegu. The next landmark in the Anglo-Burman relations was the signing of commercial treaties in 1862 and 1867. King Mindon wanted to recover Pegu through the friendly intervention of the French Emperor. He sent an embassy to Paris which concluded an ordinary commercial treaty in 1873. A similar treaty was concluded with Italy in 1871. But the King died in 1878. Thibaw who succeeded him gave offence to British merchants and thereby lost his throne. Upper Burma was annexed to British India in 1886. There is a useful bibliography and index. One chief merit of this book is that it is fully documented. It is written well and without prejudice. The comments are sober. We congratulate the author on his successful study.

V R. R. DIKSHITAR.

THE NAYAKS OF GINGEE By Rao Bahadur C S Srinivasachariar, with a foreword by Dr Sir C R Reddy—Published by the Annamalai University

Prof. Srinivasachari is a renowned historian of Gingee. More than three decades ago the learned Professor wrote a small monograph on Gingee. He continued his studies and a French version of his history of Gingee was published in 1940 (Pondicherry Bibliothèque Publique, Rue des Capercius). The author's versatility egged him on to publish an all-comprehensive history of Gingee which he has made his own. The result is the book under review. In ten chapters covering 533 pages Professor Srinivasachari presents his history of Gingee. In the first there is a description of the fort at Gingee together with a discussion on the origin of the name Gingee. Even in the age of the Cholas of Vijayala dynasty, Gingee was not well-known and its fortifications must have been effected in the centuries immediately following the disruption of the Chola empire. According to the Karnataka Rajakkal Savistara Charitram which the author uses pretty freely in his book, one Ananda Kon, a shepherd by caste, and a petty ruler of Gingee was responsible for the first fortifications. Then the dynasty of the Kons gave way to the Kurumbar rulers from whom it passed on to the Vijayanagar power. About the 14th century one Narasinga Raja held it as a fief of Vijayanagar sending an annual tribute. It soon became a

seat of a line of Nayak rulers who extended its fortifications Tubakı Krishnappa was the founder of the Nayak line. His rule lasted till 1521 A.D. He built temples with rich sculptures, and enclosed the three hills of Gingee with thick walls, making big granaries of the Gingee fort and the Kalyana Mahal. That he reigned and ruled is evident from the writings of Father Pimenta, a Jesuit traveller to his court. His zeal for Vaishnava religion is seen from his determination to restore and repair the Govindaraja shrine at Chidambaram. His relations with the Portuguese and the Dutch and his unfortunate part in the civil war of Vijayanagar (1614-17) are dealt with in great detail. His successors were weak, inefficient and consequently thrown to the shade.

All this led to the incursions of the Muslims and the occupation of Gingee by Bijapur army by 1649, the then Nayak surrendering. Gingee continued to be in possession of Bijapur till 1677 when Sivaji easily attacked it in the course of his Carnatic expedition. He strengthened his relations with Golconda. Before he consolidated, Sivaji died in 1680 and Sambhaji mismanaged and precipitated a conflict with the Mughals which resulted in his capture by the Mughals in 1689. Feeble and unsuccessful attempts were made by the Marathas to retain Gingee but, in 1698 the Mughals got possession of the fort. From 1700 to 1714 Raja Sarup Singh and the famous Raja Desing were in charge. From the former the Fort St David Government were able to get some territory and other concessions. With the removal of the headquarters of the Mughal subha to Arcot, Gingee lost its importance politically. The capture and occupation of Gingee by the French (1750-61) and its final fall into English hands are entertaining portions of the book.

All the available original documents are pressed into service besides a helpful index and fascinating illustrations. The Professor deserves the gratitude of all students of Indian History, and especially of South Indian History.

V R. R DIKSHITAR.

PROGRESS OF GREATER INDIAN RESEARCH (1917-42): By U. N. Ghoshal, Calcutta, 1943.

Thanks to modern enlightened Governments and to the various learned societies, the past history of Greater India is being unearthed and interpreted. Archaeologists and historians have put forth their best in this co-operative endeavour and their achievement during a period of a quarter of a century or less is something

remarkable and striking. Prof. Ghoshal whose services to Indology are very well-known and who has contributed an informative study on the subject to the Jubilee Volume of the Bhandarkar Research Institute has chosen to publish it again in a handy little monograph together with a learned preface, three useful appendices and an index. This study relates to Afghanistan, Central Asia, Tibet, Mongolia, and Manchuria, Burma, Siam, Cambodia, Champa, Malayasia, and Ceylon. Under Malayasia, Java, Bali, Borneo and Celebes, Sumatra and Malay Peninsula are treated. It is a bibliography of the work, archaeological and historical, done practically within two or three decades. In placing before the public a scientific and critical review of the progress of researches, Prof. Ghoshal has consulted all the published works on the different countries by authoritative scholars, whether in the form of books, monographs or articles. A perusal of this work of Ghoshal will at once show the tremendous output of original research carried on with great competence and diligence during the years 1917-42. It is a welcome addition to the bibliography on Greater India. It indicates that the ancient Indian was a bit of an adventurer who not only took his goods to the foreign market but also transplanted his institutions and his religion, and made their influence enduringly felt in South-East Asia for nearly ten centuries. Dr. Ghoshal has earned the gratitude of every student of this fascinating subject.

K A. N.

THE CASE FOR EXAMINATIONS By J L Brereton, M.A.
Cambridge University Press, Cambridge, 1944.

It is not an easy job to present a generally acceptable case for examinations as we know them. The modern tendency is to regard them as out of date, their results as misleading, and their influence on the pupils as vicious. But such an attitude may not always be based on considered opinion. It can easily become just an 'unfortunate fashion' to condemn examinations. Hence it is very desirable for any one concerned with education to read what a vigorous exponent from the other camp has to say.

The book consists of two parts, the first part dealing with the elucidation of general principles and an account of the way in which the present school examination system has arisen (in Britain), and the second part with some changes that may be made to suit the present day needs of that country. The author, who has sixteen years' experience with the Cambridge Local

Examinations, deals with the subject only in relation to the educational system that obtains in Great Britain and consequently he is chiefly concerned with examinations like Oxford and Cambridge Locals, London Matriculation, etc., that are popular in that country. The recently published Norwood Committee's Report is discussed in the final chapter. However, he makes a good deal of useful observations on examinations in general.

The first three chapters of the book contain most of what Mr. Brereton has to say in support of examinations in general. According to him, the examination is the lynch-pin of the whole educational system. The examination is not only the means of testing its results, but is also the most practical mobilising force on education, acting as stimulus both to the students and teachers. The success of an examination is analysed as being dependent upon.—

(a) Offering a suitable reward, a certificate that would be accepted by potential employers and for higher educational activities.

(b) A limited time within which it will be held. In this connection the author discusses the psychological effects of having periodical examinations with their dates fixed.

(c) A knowledge that it will be conducted fairly. Here the various steps that could be taken to ensure fairness in a single examination, as well as the desirability of having uniformity in the standard of difficulty in the successive years of a particular examination are discussed.

(d) Its being neither too hard nor too easy. "The standards must be high enough to extend the candidates but not so high as to discourage them". In connection with this principle the policy that ought to direct the fixing of the 'pass marks' is considered at length. The author works on the assumption that a certain percentage are bound to be failures and that the number of passes must be determined in accordance with the number of available places for further activities, by way of seats in the upper class or jobs in outside society. This point is repeatedly referred to in the whole book, and yet one is left with the impression that the author has not dealt with all the practical difficulties that would be involved in an application of this principle. It is pointed out that the standard for pass must be raised when the general level of knowledge increases. Or else, the examination will fail in its function of being a stimulus to the candidates and of selecting

the fit ones for further activities. That the standard of difficulty must be related to the available knowledge of the changing times, is certainly a sound principle.

(e) Its being able to bring out the comparative merits of the examinees. The necessity of proper weighting of certain papers when an examination consists of several subjects is emphasised and brought out clearly with the help of examples. This is useful because, in many examinations, this factor is not given any consideration.

(f) Its being a 'gateway to further activity'. It is under this point that the author has to say a good deal with regard to what an examination ought to be. The examination is not merely the end of one phase of activity, but is also the gateway to another. It should be considered as a link. Hence the author stresses the need for planning the syllabus and courses of study with this point in mind. It is in fact the main theme of the second part of the book which deals with possible and necessary reforms proposed by the author. It is contended that the planning of the course of studies and the examinations, must be done jointly by those responsible for training the students before the examinations and those responsible for their activities after they have taken them, the latter may be representatives of higher educational bodies and of the industrial, commercial, and governmental employers. Even though all the practical difficulties are not properly appreciated by the author there will be general agreement with what he has to say on this point.

The style of the author makes the reading easy and his tendency to repeat himself—in some cases, perhaps too often—makes it easier to know what he is driving at. Though the book may not go a long way in meeting the objections of those who do not believe in examinations, the author has certainly done a valuable service to those that are concerned with the planning and conducting of examinations, at least in Britain.

G. D. BOAZ.

THE KUPPUSWAMI SASTRI MEMORIAL

AN APPEAL

The immense services of the late Mahamahopadhyaya Prof S Kuppuswami Sastri to the cause of Sanskrit learning and education are very well-known. He was a profound scholar in all the Sastras and a *litterateur* of rare excellence. He combined the depth of knowledge of the old style of learning with the width of the critical outlook of the modern scholar in a remarkable measure. First as Principal of the Sanskrit Colleges in Mylapore and Trivadi, and then as Professor of Sanskrit and Comparative Philology in the Presidency College, Madras, he played for many years the most decisive part in the designing and the working of the courses of study in Sanskrit, and Indian languages in general, in the University of Madras. He started the Samskrita Academy in 1926 in collaboration with Sri V V Srinivasa Ayyangar and others, and the Journal of Oriental Research in 1927 with Sir P S Sivaswami Ayyar as the President of the Executive Committee and himself as the Chief Editor, and as the Curator of Government Oriental Manuscripts Library, he organised an intensive campaign of manuscript collection and got together what is to-day one of the finest collections in the world, of which the province is rightly proud to be the owner. During the thirty years of his work as Professor, he trained a number of eminent panditas and young men in the critical methods of the study of Sanskrit works, and brought into being a school of research the members of which are now carrying on research work in the several institutions in and outside Madras. He planned the revision and amplification of Aufrecht's Catalogus Catalogorum of Sanskrit Manuscripts and was Chief Editor of this work for some years. His work as member of the various academic bodies in the Universities of India and in the University of Madras in particular, was always characterised by a thoroughness and high academic perfection which earned for him the deepest respect of his colleagues.

The Public meetings held in the city and elsewhere when the news of his passing away was reported last September and the speeches that were delivered by many scholars and publicists on those occasions gave clear proof of the high esteem in which his work was held and the love and affection his personal qualities evoked.

At the last All India Oriental Conference held at Benares (December 31, 1943 and January 1 and 2, 1944), the President of the Conference, Dr S. K. Belvalkar, himself Sanskritist, made an eloquent appeal for starting a Kuppaswami Sastri Research Institute at Madras on the model of the Bhandarkar Oriental Institute at Poona, and the new Ganganath Jha Institute at Allahabad. Such an Institute would be a fitting memorial to the great Professor and it could take under its protecting wings the Samskrita Academy and the Journal of Oriental Research that were so dear to the Professor during his lifetime, undertake the publication of the unpublished works of the Professor, and continue the useful work of research started by him.

Liberal contributions are solicited towards the realisation of this project which would require a lakh of Rupees as a minimum, and they may be kindly sent to Sri Rao Bahadur K V Krishnaswami Aiyar, Advocate, 6, North Mada Street, Mylapore

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